FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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FEEDSTUFFS *Features This Week*

DESIRE TO SERVE—A Wisconsin feed firm in a small trade area has $1½ million sales through desire to serve and plenty of equipment. **Page 18.**

RUMINANT NUTRITION—Feed additives in ruminant nutrition and metabolism in the rumen are discussed on **page 26.**

MICRO-INGREDIENT DISTRIBUTION—Research on mixing of micro-ingredients is discussed on **page 38.**

NEW PLANT—A word and picture tour of the new Pillsbury feed plant at Jasper, Ala., is presented on **page 46.**

SALES MANPOWER—This article describes methods which eliminate guesswork in sales manpower management. **Page 50.**

VITAMIN K—Recent developments on a proposed ANRC vitamin K reference standard are presented on **page 56.**

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Local Mills Affected

Feed Men Told: 'You're Pharmacists'

By ROGER BERGLUND
Feedstuffs Managing Editor

MINNEAPOLIS — Said the feed man to the FDA man: "I object to being labeled a pharmacist. We're a service business, performing a mechanical function, mixing feed for our farm customers."

Said the FDA man to the feed man: "But you are functioning in the role of a pharmacist—you have increasing responsibility. If you don't think so, have a look at a new drug application, with the mixing and other controls."

An exchange along these lines occurred at the Northwest Retail Feed Assn. conference this week in Minneapolis. The occasion was a discussion of "Food and Drug Regulations and Small Feed Plants," led by A. Harris Kenyon, director of the Minneapolis district of the Food and Drug Administration.

Neither the feed man nor the FDA

(Turn to 'PHARMACISTS,' page 101)

Cattle on Feed Set New Record

WASHINGTON — The number of cattle and calves on feed for market in 26 major feeding states Jan. 1 set a new record and was 6% higher than for the same date a year earlier, according to the U.S. Department of Agriculture.

On Jan. 1 a total of 7,583,000 head of cattle and calves was on feed as compared with 7,173,000 on Jan. 1

(Turn to CATTLE ON FEED, page 8)

More Investment by Feed Men Predicted by AFMA Economist

By FRED E. TUNKS
Feedstuffs Staff

MINNEAPOLIS—Inevitable in the future of most feed dealers and relatively small feed manufacturing operations is increased investment, said Oakley M. Ray, director of market research, American Feed Manufacturers Assn., at the Jan. 15-17 conference of the Northwest Retail Feed Assn. in Hotel Pick-Nicollet here.

"Intense competition will force the industry to continue to improve efficiency rapidly and to pass on most of the benefits in the form of lower prices and/or more services," he said. "In order for feed companies to survive they must be able to produce and distribute a complete feed more efficiently than farmers who have to buy and transport all ingredients."

In his predictions for the "future of the small operator" Mr. Ray said there will be some increase in on-the-farm feed manufacturing, new mills will be built smaller and closer to feeding operations than many of the older mills and more feed will be delivered directly from the mill to the farm.

"The fellow closest to his customer is in the best position to serve that

(Turn to INVESTMENT, page 7)

Price Supports Outmoded, N.W. Elevator Men Told

By GEORGE L. GATES
Editor of Feedstuffs

MINNEAPOLIS — Government price support programs for corn have been completely ineffective, Richard F. Uhlmann, president of Uhlmann Grain Co., Chicago, told members and guests of the Northwest Country Elevator Assn. at the organization's annual market get-together Jan. 17.

"The corn controls were so unrealistic that only one corn acre in seven

(Turn to PRICE SUPPORTS, page 7)

20% Bigger Turkey Crop Forecast from Intentions

WASHINGTON — Growers intend to produce 20% more turkeys in 1961 than they did in 1959, the U.S. Department of Agriculture announced Jan. 18. They plan increases of 22% in heavy breeds—heavy whites up 34%, other heavy breeds up 17%—and 5% in light breeds.

If growers carry out their intentions, about 99 million turkeys will be raised—a fifth more than the 82.3 million grown in 1960.

USDA said growers in all regions of the country plan increases—west north central, 22%; east north central, south Atlantic and west, 21%; south central 16%, and north Atlantic 11%.

Heavy breed growers intend to raise 88,795,000 turkeys in 1961, including 29,018,000 heavy whites, compared with 21,629,000 in 1960. According to present plans, heavy white breeds will account for about 33% of all heavies raised in 1961, compared with 30% in 1960.

All regions plan to increase the number of heavy white breeds. Increases planned are 65% in west, 41% in south Atlantic, 34% in west north central, 31% in east north central, 30% in south central, and 12% in the north Atlantic regions.

Intentions indicate 59,777,000 bronze and other heavy breed turkeys will be produced in 1961. All

(Turn to TURKEY CROP, page 7)

• • •

Turkey Industry Wasn't Worried About Nothing

Turkeymen weren't worrying about nothing.

Ever since it was realized that the 1961 turkey crop was bound to be bigger than 1960's, the turkey industry, including feed men, has been fretting about the possible size of the increase and what might happen to prices in the new year.

This week's U.S. Department of Agriculture report of growers' intentions as of Jan. 1, 1961 (see related story), brought crop size speculation

(Turn to INDUSTRY, page 100)

December Egg-Type Hatch 3% Greater

WASHINGTON — An increase of 39% in the December, 1960, egg-type chick hatch, compared with December, 1959, was reported this week by the U.S. Department of Agriculture.

And it is certain that this trend in strong expansion — started last May—will continue through January. USDA said the number of egg-type chicken eggs in incubators Jan. 1 was 38% greater than on the same date a year earlier.

Egg-type chicks hatched during December, 1960, totaled 19,919,000. Although egg-type chick output was greater during 1960 than during 1959 through the months of May-Decem-

(Turn to CHICKS, page 101)

• • •

December Heavy Breed Poult Hatch Up 68%

WASHINGTON — December's hatch of heavy breed poults was up 68% from the same month a year earlier, according to the Jan. 16 hatchery production report of the U.S. Department of Agriculture. For light breed poults the gain was 33%. The hatch of poults of all breeds showed a climb of 61%—the largest monthly increase, comparing 1960 with 1959, for the year.

This last-month expansion pushed the total poult hatch for 1960 3% above the 1959 total.

A similar increase in the poult hatch is indicated for January. Turkey eggs in incubators Jan. 1, 1961,

(Turn to POULTS, page 101)

Government Activities Affecting Trade Discussed at Indiana Feed Convention

By DON E. ROGERS
Feedstuffs Staff

INDIANAPOLIS—The 59th annual convention of the Indiana Grain & Feed Dealers Assn. at the Claypool Hotel here Jan. 15-17 attracted an exceptionally large attendance. Well over 700 delegates registered to hear a program of speakers on such timely topics as "The Grain and Feed Business in the '60's" by Charles S. Force, Kalamazoo, Mich., president, Grain & Feed Dealers National Assn.; "The Future Role of the Federal Government in Agriculture" by Martin Sorkin, assistant to the secretary, U.S. Department of Agriculture, Washington, D.C.; "How Farmers Choose Their Feed Dealers" by Dr. R. L. Kohls, Purdue University, Lafayette, Ind., and others.

Addis O. Thomas, Thomas Milling Co., Inc., Marion, Ind., was elected president, succeeding Eugene G. Byer, Farmers Grain and Feed Co., Columbia City, Ind. Nelson F. Igel, Graham Brothers, Inc., Washington, Ind., was elected vice president. Fred K. Sale was reappointed executive secretary, Agnes B. Harmon, assistant secretary, and Dale G. Phillips, treasurer.

Elected to two-year terms as directors were: Mr. Byer; Jack Steinhart, Allison, Steinhart & Zook, Inc., Indianapolis; W. H. Aylor, Aylor & Meyer Co., Aurora, Ind., and Alvin

(Turn to INDIANA, page 97)

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Top of the Hopper

THE FDA STATEMENT that any final mixer of a new-drug-containing feed must have an effective New Drug Application or Antibiotic Form 10 for any particular feed has brought a good deal of speculation as to whether or how such a requirement would actually be worked out and enforced. One feed man said that the FDA would have to have a building bigger than the Pentagon just to hold all of the files that would be required. Estimates as to how many NDA's and Form 10's there would have to be if every possible mill and every possible new drug feed mix were covered have ranged from 480 million to 650 million. The heavy paper requirements (including copies in quadruplicate, at least) could exceed the tonnage of drugs used.

A STORY FROM THE Rome headquarters of the Food and Agriculture Organization of the United Nations on page 8 of this issue reports that a Marine Resources Research Institute, financed by a U.N. Special Fund and the government of Peru, is being established to see what can be done about solving the many problems—some of them world-wide—created by "the sudden, even explosive, development of anchoveta fishing off the coast of Peru."

This project, it is explained, will be concerned with problems involving the fishing and guano (droppings from guano birds, an important fertilizer source for Peruvian farmers) industries, while an international meeting will deal with fish meal production and marketing problems.

Although F. E. Popper, chief of the economics branch of FAO's fisheries division, who announced establishment of the institute, made no specific references to the U.S., which has had its fish meal industry and market thrown into a spin by vast imports of Peruvian fish meal, it is quite possible that efforts extended by representatives of the U.S. fish meal industry have been a great influence in the organization of the international meeting he mentions.

Organizations and private firms in the U.S. for some time have promoted the idea of calling together representatives of the many countries affected by the Peruvian fish meal situation. It appears that the U.S. fish meal industry's request to the State Department for help in initiating an international conference, more or less shunned primarily because of diplomatic and political reasons, was passed on to the U.N.

Although it is likely that the U.S. had much to do with getting the pending international meeting on the docket (no date or place has been announced), Mr. Popper notes that government and industry representatives of several countries asked FAO to set up the conference.

While Peru has been criticized for letting its fish meal industry get out of hand, some credit should go to that country for recognizing (even though a bit late) the dangers of rapidly expanding fish catches and meal production and cooperating with the U.N. in a positive program.

DOANE AGRICULTURAL DIGEST is advising its feeder readers to feed more protein to cattle to obtain faster gains at less cost. Earlier sale will mean greater profit margins because of expected declines of $2@2.50 cwt. in June.

AS BARLEY PRODUCTION increases in some western areas, livestock farmers are more interested in feeding out cattle themselves and less interested in selling feeder cattle to Corn Belt farmers—which is posing an increasing problem in parts of the Midwest. The other day a group of North Dakota livestock men were asked where they usually sell their cattle. "Sell

(Turn to **TOP OF THE HOPPER**, page 102)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Movement of formula feeds slowed down a bit this week around the nation, mainly because of mild, open weather; a down market in a number of major ingredients, and bulging dealer and feeder inventories.

Arrival of colder weather and snow in northern parts of the nation late in the week was expected to stimulate new business. But it may be a week or so before dealers and feeders deplete heavy stocks laid in when ingredient and feed prices were in a steep climb.

A decline of 0.9 from last week put the new wholesale feedstuff price index at 79.2, below the year-ago mark by 4.2.

This week's feed-grain index, 62.5, is the same as the week before but still below the 66.2 index of the same week last year.

A gain of 0.3 in the hog-corn ratio was reported. The latest ratio of 16.1 is 5.2 better than a year ago. (Feed markets in detail on pages 98-100.)

Northwest

It's difficult this week to pin down any particular trend in formula feed business in the Northwest. It is generally agreed, however, that January of this year will finish better than did the same month last year. One manufacturer estimated a 20% gain.

Most of the industry representatives contacted this week said demand now is not quite up to what it had been during the first two weeks of the new year. One of the reasons for this is that buying was heavy as formula feed prices followed ingredient prices upward. A great number of dealers and feeders bought ahead. Now, apparently, many of these same dealers and feeders, well aware of a leveling off in prices, are working from inventories.

Though reports vary from company to company, demand for feed of all kinds is good right now. While some manufacturers, especially those with contract programs, say broiler and turkey feeds are moving very well, others say the best market right now is in dairy, beef cattle and hog feeds.

Ups and downs in ingredient prices this week offset one another so manufacturers expect to see no change or only a slight reduction in feed prices this week.

Southwest

Formula feed business in the Southwest was considered slow by the mills compared to the runs they experienced several weeks ago. A few mills indicated that their run was equal to last week. Open weather on the range still remained an important factor in setting the pace of formula feed output.

Price lists will probably remain about the same although some could be lower as soybean meal and millfeeds experienced some weakness through the week. Animal proteins and linseed meal were higher for the week. Large inventories cut back runs on cattle and range feed while hog feed and poultry feed sales remain fairly steady.

Reports of record high numbers of cattle on feed along with prospect of substantially higher turkey numbers this year give some cause for optimism.

Northeast

The seasonal lull in formula feed sales continued this week and mixers reduced their running time to meet the lessened demand. The trade hopes for a return to normal operations next week and it could be speeded by colder weather.

There has not only been a January thaw in temperatures but also in ingredient prices. Levels hit a peak and then began to slide. Consumers, as usual, took to the sidelines on the downturn.

A large amount of dairy feeds to mix on the farm continued to be sold and as yet there has been no big switch to complete feeds. Egg mashes were the runners-up in sales. Chick starting feeds are continuing to grow in volume and a little more broiler feed showed up in the tonnage.

Egg prices in the East continued to back down. Levels in the western New York area slumped sharply after earlier resistance to outside pressure.

Broilers, however, were in good shape and at prices where growers can make a profit.

Southeast

All types of formula feed business in the Southeast are reported slow to fairly good, depending upon location. Manufacturers of broiler feeds report their running time as being about normal for this time of year.

Major feed ingredient buyers have covered their requirements of oilseed meals for January and loaded cars of both soybean and cottonseed meal on track have caused producers to reduce their prices as much as $2 ton for immediate and prompt shipment and are finding very little buying interest.

Demand for corn is still good. Prices advanced 1¢ bu., making the delivered price $1.31@1.33, depending on destination.

Warmer weather has slowed down the demand for cottonseed hulls, causing prices to drop $1 ton in the Mississippi Valley and $2 ton in the Southeast.

Most of the citrus processors are now at maximum capacity with production exceeding demand, causing the major processors to reduce their price $2.50 ton. The new range is $40-42.50, f.o.b. Florida producing plants with the movement of pulp continuing on the slow side.

Demand for citrus molasses is greater than production resulting in the market advancing $1 ton. The f.o.b. price this week was $22 ton, Florida producing plants. Offerings were limited.

Central States

On the basis of current information, it looks as though the current month is going to shape up about the same as the one preceding. In a few spots there are signs of business wearing just a little thinner than it was shortly after the turn of the year. But, all-in-all, an eminently satisfactory situation is maintaining.

Compared with a year ago, rank and file manufacturers seem to feel that their business is about 5-10% better. Prices have been somewhat

(Turn to **MARKETS**, page 103)

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Increase in Broiler Egg Settings Told

SALISBURY, MD. — Egg settings for the production of broiler chicks jumped up last week in 17 of the 22 broiler producing states.

Last week's set of 49,345,000 was 5% above the previous week and 7% above the corresponding week a year ago. States reporting sizeable increases included Georgia, Alabama, Arkansas, and Mississippi.

Chick placements in the 22 states totaled 33,671,000. This was slightly below the previous week but 4% above the corresponding week a year ago. Decreases were reported for 12 states compared with the previous week. States showing appreciable decreases include Georgia and Texas.

Prices in Delmarva improved last week over the previous week. The average price paid at the farm was 17.73¢ lb., compared to 17.43¢ the week before. A year ago the price was 16.95¢.

GFDNA Schedules Congressional Dinner

WASHINGTON — A congressional dinner will be one of the highlights of the annual convention of the Grain & Feed Dealers National Assn. in Washington, D.C., during the week of March 20-24.

Senators and representatives throughout the U.S. are being invited by individual members of the national association to be their guests for a dinner on Thursday evening, March 23. Response to the congressional dinner invitations has been great, officials said, and indications are that some states will have 100% congressional attendance. The dinner will offer an opportunity for national association members to get acquainted with the 87th Congress and for congressmen to learn about the problems of the grain and feed trade. There will be no speeches, but there will be entertainment. Ladies, as usual, will be welcome at the banquet.

This 65th annual convention will be the first ever to be held in Washington by GFDNA. The new administration and the 87th Congress, plus the historical attractions and scenic beauty of the area, were considered in selecting Washington as the convention site.

Plans for the Grain & Feed Dealers National Assn. 65th convention are nearing completion; however, keynote speakers will be announced later.

Activities of the week include Secretaries Circle meetings on Monday and Tuesday; transportation, sanitation and public relations meetings on Wednesday; congressional dinner on Thursday night, and a government guest luncheon at noon on Friday. A full schedule is planned for each day. More than 1,000 persons are expected to attend the convention March 20-24.

7,000 ATTEND SOUTHEAST POULTRY CONVENTION

ATLANTA, GA.—Some 7,000 poultrymen, feed officials, salesmen and processors streamed into Atlanta this weekend for the opening of the nation's largest poultry trade show, the Southeastern Poultry & Egg Assn.'s annual convention. Sessions are being held in the massive municipal auditorium in the heart of the downtown district.

With another trade show going on in the city at the same time, hotel space was booked to capacity and Harold Ford, executive secretary, said the attendance looked so good on the eve of opening ceremonies that many delegates were being sent to motels in the outlying districts.

Dr. G. K. Davis Dr. L. E. Card

Program Told for Dehydrator Meeting

KANSAS CITY—Topics, including the cost of producing dehy, use of pesticides, estrogens in alfalfa, value and uses of dehy in animal nutrition, and improved marketing will fill the completed program of the 19th annual convention of the American Dehydrators Assn. at the Jung Hotel, New Orleans, La., Feb. 9-10.

Among the featured speakers for the event are Dr. G. K. Davis of the University of Florida and Dr. L. E. Card, former head of the animal science department at the University of Illinois.

At the Feb. 9 afternoon session Dr. L. E. Card will give a review of the "Value and Uses of Dehydrated Alfalfa in Animal Nutrition." Dr. Card is former head of the animal science department at the University of Illinois and served on ADA's research council and was chairman of the council for several years.

At the morning session Feb. 10, there will be a showing of the association's new color-sound movie "The Twelve Month Summer," followed by Dr. G. K. Davis, University of Florida, talking on "Radioactive Fallout in America." Dr. Davis, nutritionist, is also a member of the Florida Nuclear Development Commission.

Clayton Rand of Gulfport, Miss., will be a featured speaker at the luncheon honoring the new president of the association Feb. 10. Mr. Rand is owner of the Dixie Press and editor of the Dixie Guide at Gulfport, Miss., as well as editor of a daily syndicated newspaper feature. In addition, Mr. Rand is author of five books, numerous pamphlets, articles, and a convention, after-dinner and conference speaker. His topic for the luncheon will be "New Frontiers."

The keynote speech will be given

(Turn to DEHYDRATORS, page 100)

Hormone-Antibiotic Combination Patented

NEW YORK — Fortifying animal feeds with both an antibiotic and estrogen, used for cattle and sheep, is now covered by a patent (U.S. Patent No. 2,951,760) assigned to two scientists of Chas. Pfizer & Co., Inc., the company announced.

The patent, a Pfizer spokesman said, specifically includes the "doubling up" of certain broad spectrum antibiotics such as Terramycin with orally administered estrogenic substances such as diethylstilbestrol for use in growth-accelerating concentrates.

The new patent also covers feeds supplemented with such concentrates, along with the method of increasing growth in ruminants through feeds containing specific proportions of antibiotic and estrogen.

Covered under the patent are feeds containing tetracycline-type antibiotics such as oxytetracycline, chlortetracycline and tetracycline in combination with the stilbene derivatives — stilbestrol, dienestrol, hexestrol and their alkyl ethers and esters.

The patentees are Dr. Herbert G. Luther and Dr. Warren M. Reynolds, Pfizer agricultural scientists.

The announcement noted that favorable findings at the Pfizer research center on the "doubling up" of stilbestrol and Terramycin have since been confirmed in reports by college researchers on improvements in growth promotion, feed efficiency and carcass quality.

Smaller Citrus Crops Indicated by Reports

LAKELAND, FLA. — Lower supplies of citrus meal and pulp than anticipated were indicated this week by citrus crop reports from the U.S. Department of Agriculture and other sources.

The Florida orange crop estimate has been lowered by 2 million boxes by USDA, setting the total of this year's output at 87.5 million boxes. The department put the grapefruit crop at 30 million boxes, the same as given in a previous estimate.

However, Robert Rutledge, Florida Citrus Mutual Exchange, said records received by his office indicate the grapefruit crop estimate should also be reduced. He also indicated there may be further revisions in the orange crop figures, based on reports reaching his office.

Ingredient Market In Softer Position

Slower demand for formula feeds placed ingredient markets in a weaker position this week. Despite the general downward trend, linseed oil meal and animal fat showed advances. The animal fat market climbed above the 6¢ lb. mark for the first time since early October of 1959.

Strong advances in tankage and meat and bone meal were halted. Tankage held steady because of continuing tight supplies, but plentiful meat and bone supplies cut prices.

Heavy crushings of soybeans pulled the meal price down about $1.50 ton in most markets.

Millfeeds lost ground, too, as flour grinding picked up and mild weather curtailed feed demand.

New Exhibit Method Planned for Midwest

KANSAS CITY—A new method of handling exhibit space is being initiated at the Midwest Feed Manufacturers Assn. convention Feb. 19-21 at the Muehlebach Hotel. Sixteen firms have signed up for space, and more are expected.

This was pointed out this week by Midwest officials in outlining some of the convention plans. "Exhibit space and treatment will be standardized so that each exhibitor will have equal participation at minimum expense," said Lloyd Larson. "Emphasis will be put on the firm's identification, product and trademark, eliminating costly display and expense of handling."

Firms now planning to exhibit were listed as follows: Bemis Bro. Bag Co., Dr. Salsbury's Laboratories, Armour & Co., Du Pont Co., Wenger Mixer Mfg. Co., Peter Hand Foundation, National Alfalfa Dehydrating & Milling Co., Landers Mill Mfg. Co., Combs & Co., West Virginia Pulp & Paper Co., Butler Mfg. Co., Pamco, Archer-Daniels-Midland Co. alfalfa division, Empire Sales Training Center, Bruce Dodson and National Broiler Council.

The cooperation of these firms, officials said, will make possible modest registration charges. Advance registration for members will be $20, including the "Allied Breakfast," an evening event and a luncheon. For man and wife, the fee is $35. There also will be a brunch for the ladies. For non-members, advance registration is $25 (for one) and $40 (per couple).

'Just Another Service?'

Maryland Feed Men Help Deliver Baby

BERLIN, MD.—Two officials of the Berlin Milling Co. reached the ultimate in labor-management relations the other day. They helped to deliver the baby of an employee's wife.

Mrs. Robert Toomey, about 20, gave birth to a boy as Howard T. Pruitt and O. Sheldon Chandler, Jr., of the milling firm rushed her by car to a midwife.

The birth occurred about halfway between Newark and Berlin. They were headed for Whaleysville, about 10 miles away, when the big moment arrived.

Using a two-way radio in the car, the men had contacted their office in Berlin — which in turn telephoned Peninsula General Hospital in Salisbury for instructions on how to assist in the birth.

Baby Arrives

By the time contact was made, the baby had arrived. So Mrs. Irene Anderson, a nurse in the accident ward at the hospital, merely advised the men to keep the baby warm and to bring mother and son to the hospital.

"I held the baby up by its feet and smacked it on the rump," Mr. Pruitt said. "It cried."

Mrs. Toomey and her 5-lb., 11-oz. son were reported in good condition later at the hospital. She and her husband, who grows chickens for the feed company on a tenant farm in Newark, have two other children.

The Toomeys called the firm about 2:30 p.m. and said they needed a doctor. Mr. Chandler, son of the company president, and Mr. Pruitt, the office manager, were unable to locate one immediately, so they drove eight miles to pick up Mrs. Toomey.

When the two men returned to the office late in the afternoon, O. Sheldon Chandler, Sr., president of the firm, listened to their story with interest.

"Just Another Service?"

Then he quipped: "Well, just another service of Berlin Milling Co., isn't it?"

"I hope not," Mr. Pruitt exclaimed with an assist from Mr. Chandler, Jr.

Mr. Toomey, father of the new baby, missed all the excitement after walking a mile to reach a telephone to call for help. He stayed home to watch the Toomeys' other two children and 16,000 chickens.

Mrs. Toomey said she plans to name the baby after the two men who helped deliver him.

MIDWEST SPEAKER—Here is Kaye King, design stylist at Hallmark Cards, Inc., who will show ladies attending the Midwest Feed Manufacturers Assn. convention, Muehlebach Hotel, Kansas City, Feb. 19-21, how to wrap "Gifts Too Pretty to Open" as well as timely party ideas and suggestions. She will entertain the ladies at their brunch Monday morning, Feb. 20.

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Want to help your growers market more meat-type hogs—healthier, heavier, more uniform in size? Then offer swine feeds containing PRO-STREP from right after weaning until pigs weigh from 50 to 75 pounds.

PRO-STREP is a highly effective combination of penicillin and streptomycin that helps prevent outbreaks of bacterial swine enteritis. It also stimulates growth and improves feed efficiency *more economically than any single antibiotic—narrow- or broad-spectrum!*

That's why more and more progressive feed mills throughout the country are switching to PRO-STREP. What *they* want is what you want—an effective *combination* of antibiotics that can promote growth and protect health at lower cost.

For bigger profits-per-pound for your customers at market time, start fortifying your feeds with PRO-STREP.

Ask your Merck Feed Products Representative or write to Merck Chemical Division. Merck & Co., Inc., Rahway, N. J.

The Best Antibiotic Combination... **PRO-STREP®** MERCK

Penicillin and Streptomycin

®TRADEMARK OF MERCK & CO., INC., FOR AN ANTIBIOTIC FEED SUPPLEMENT.

Tonnage for 1960 Estimated Under 1958, 1959 Totals

MINNEAPOLIS — Economic data discussed here at this week's Northwest Retail Feed Assn. conference by Oakley M. Ray, market researcher for the American Feed Manufacturers Assn., support these conclusions:

- Formula feed production in 1960 probably will be slightly lower than the 40-million-ton total reported for 1958 and 1959.
- Volume of concentrates as compared with complete feeds has shown sharp increases in past years.
- Commercial feed consumption per animal unit was 49% greater in 1958 than it was 10 years earlier.
- Farmers are buying more of their production items off the farm.
- Feed is the only major farm production item that has dropped in price during the past decade.
- Per capita consumption of chicken and turkey is now more than twice what it was before World War II, but over this period there has been a drop in the number of eggs eaten per person.
- A downward trend in per capita consumption of dairy products is evident.
- While per capita consumption of beef has increased since the pre-war period of 1935-39, pork consumption per person has declined.
- Substantially more eggs, fluid milk and cream, pork, chicken, lamb and mutton and beef will be needed to feed a rapidly increasing population by 1975.

The charts and tables distributed at the convention attended by northwestern feed dealers and manufacturers were prepared by Mr. Ray from U.S. Department of Agriculture data, from figures compiled by other government departments and agencies and from information developed by AFMA.

Summaries

Following are summaries of trends indicated by and information contained in the material:

Population Increasing Steadily— The population figure projected for 1980 is 273 million, based on U.S. Bureau of the Census data. This would represent an increase of 112% from the 1935-39 average of 129 million. The population total for 1960 has been pegged at 181 million, or 40% greater than the base period count.

Changes in Per Capita Consumption of Chicken, Turkey and Eggs—"Consumption of chicken and turkey is now more than twice what it was before the war," Mr. Ray noted. In 1948, per capita chicken consumption was 137% and turkey consumption was 141% of the 1935-39 average. The preliminary estimate for 1960 places chicken consumption per person 118% greater than the 1935-39 base period and turkey consumption has increased 173% over the same period.

"For eggs, the trend is not so favorable," Mr. Ray said. "There has been a decrease in the number of eggs eaten per person since 1951, when per capita egg consumption was 131% of the 1935-39 level." Per capita egg consumption estimated for 1960 is only 8% higher than it was before World War II.

Changes in Per Capita Consumption of Dairy Products—Per capita consumption of dairy products in total has weakened slightly in recent years, and is the only major class of livestock products which shows a decline since pre-war years. In 1960 estimate of dairy products per capita consumption is 16% under the 1935-39 average.

Per capita consumption of fluid milk and cream for 1960 is estimated at 103% of the pre-war base period. In 1948 the percentage was 108%.

Changes in Per Capita Consumption of Beef and Pork—While per capita beef consumption was, according to USDA estimates, 54% greater than the average of the 1935-39 pre-war period, pork use in the diet has been in a declining trend. Per capita consumption in 1952 was 128% of 1935-39. For 1960 the percentage is estimated at 114.

Percentage Increases Needed in

(Turn to TONNAGE, page 102)

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Northwest Retail Feed Group Elects

MINNEAPOLIS—Members attending the 29th annual conference of the Northwest Retail Feed Assn., Inc., here elected new officers Jan. 16. George Kolb, Jr., who had been vice president, was elected to head the group for the coming year.

Mr. Kolb is with Belgrade Flour Mills Co., Belgrade, Minn.

Elected to the vice president post was Jack Conlee of the Osborne McMillan Elevator Co., Minneapolis. Elected to the board of directors were the following: Keith Johnson, Farmers Elevator Co., Elmore, Minn.; Leonard McCracken, Farmers Elevator Co., Northfield, Minn., and E. C. Bramlage, Farm Service Elevator, St. Cloud, Minn.

W. D. Flemming is secretary-treasurer of the association. Retiring president of the association is Lloyd Tobias, Pipestone Grain Co., Pipestone, Minn.

• • •

Production Tips Told at N.W. Meeting

By RUSSELL TOKHEIM
Feedstuffs Staff

MINNEAPOLIS — Suggestions on quality and inventory control, information on new equipment and a discussion on open vs. explosion proof motors for feed mills were part of the program of the Northwest Retail Feed Assn., Inc., 29th annual conference held at the Pick-Nicollet Hotel here Jan. 15-17.

Any good inventory control system must start with a disappearance record for a guide in ordering supplies, Eldon Roddis, Roddis Feed Co., Rochester, Minn., told the feed men assembled.

Then, he continued, a system of dating stacks of bagged feed to keep removal orderly and assure fresh feeds is also very important.

Mr. Roddis said that it is still possible to get ingredients at low cost in small quantities. He said that with good inventory control less capital would be tied up in stocks and less warehouse space would be necessary.

Regarding quality control, Mr. Roddis said that quality is essential in ingredients even if it costs more.

He suggested that feed men have their meat and fish protein analyzed as to nutritive value and soybean meal tested for nutritive value and moisture. He said that if quality falls below specifications, it is advisable to send the laboratory analysis along to the supplier and request a refund. He said that this many times will also help insure better quality in the future. He also suggested testing alfalfa quality.

In the quality control line, he also suggested that feed men take the first 100 lb. from each batch of feed and hold it back. He said that many times the first 100 lb. is not of the same quality as the rest of the run. The feed held back can be included in the next batch of the same formula. He also commented that because of carelessness many times a few

(Turn to NORTHWEST, page 102)

BACK BILL—A bill which would obtain a business tax adjustment on the reinvestment-of-earnings principle was of mutual interest to Charles Force, the president of Grain & Feed Dealers National Assn., and Congressman Frank Ikard (D., Texas) when this picture was taken in Washington. Mr. Force reaffirmed the association's interest in backing the bill as a measure to stimulate the economy. The bill would permit a businessman to deduct from his taxable income an amount equal to 20% of net earnings (but not exceeding $30,000) if, during the taxable year, an increase was made in total investment in depreciable assets, inventories or accounts receivable.

Hubbard and Archer Feeds Consolidated Into One Line

MANKATO, MINN.—Consolidation of the Hubbard's Sunshine and Archer Booster Feeds and Concentrates into one line with the new name Hubbard Sunshine-Booster, was announced to the enlarged and consolidated sales force of Hubbard Milling Co. at a three-day meeting in Mankato recently.

Nearly 50 salesmen from 12 states, plus other feed division personnel, attended the meeting and received completed information on the consolidated line and plans for a heavy spring sales and promotional campaign.

This same information will be carried to dealers throughout the Midwest at meetings scheduled for Springfield, Ill.; Cedar Rapids, Iowa; Mankato, Minn.; Worthington, Minn.; Fergus Falls, Minn.; Marshall, Minn., and Prescott, Wis. Additional meetings may be scheduled later and a session for dealers in Nebraska, western Iowa, and southeastern South Dakota was previously held at Omaha.

Hubbard Milling Co.'s purchase of the feed division of Archer-Daniels-Midland Co. was announced in August and the transfer was completed on Sept. 1. Since that date Hubbard has continued to supply dealers with both Hubbard and Archer feeds, which are now combined.

Hubbard is now manufacturing feed in both the Hubbard and former Archer plants at Mankato; at Cedar Rapids, Iowa; Marion, Ind., and in the former Archer plant at Springfield, Ill. Warehouse and bulk facilities also are maintained at Omaha since the Archer acquisition.

New S.E. Directory Mailed to Members

DECATUR, GA. — Officials of the Southeastern Poultry & Egg Assn. have announced that its new Southeastern Poultry Directory, which replaces the convention edition of the Southeastern Poultryman, has been mailed to all association members.

SEPEA noted that the Southeastern Poultryman has been discontinued by the association's board of directors.

The new directory which bears a distinctive book-style cover and contains sections on industry statistics, national and regional organizations, the U.S. Department of Agriculture, key industry leaders, poultry science graduates and information on where to buy various commercial products and services, is available to persons other than SEPEA members for $5 per copy.

Dow Announces Medicated Feed Mix For Grub Control

MIDLAND, MICH. — A medicated feed mix for controlling grubs in beef cattle has been announced by The Dow Chemical Co. The material is a new formulation of Trolene, which has been marketed in bolus form for cattle grub control.

"The product is prepared for feeding at the rate of 30 lb. in one ton of finished feed," the announcement said. "Medicated feed can be fed alone or top dressed in regular rations in the feed bunker. It should not be pelletized.

"A seven-day feeding program will give effective control of both northern and common cattle grubs. Animals should receive 1 to 2 lb. of the medicated feed daily, depending on their weight. The medication will not cause a palatability problem on the seven-day schedule."

Administering the grub control agent in feeds offers substantial advantages over other methods, Dow spokesmen point out. This method is far more convenient for mass medication, doing away with the need for special handling of cattle or special application equipment. The cost of application in feed is said to compare favorably with other methods.

The Trolene feed mix should be administered after the end of heel fly activity but before the grubs appear in the back. The application should be given to animals in good condition, on feed and feeding well. The medication should not be fed to lactating dairy animals or to beef cattle within 60 days of slaughter. Medicated feeds should be fed within four weeks after preparation.

Honor Winners of Daffin Contest; Cite Mobile Feed Tonnage

LANCASTER, PA. — Top-award winners in Daffin Manufacturing Co.'s "Meet the President" sales contest were honored at an award banquet which included a review of the company's growth and development since Daffin sold its first mobile feed processing unit in 1949.

The contest's first-place prize was awarded to Richard W. Beeler, Lancaster, Daffin Feedmobile representative in eastern Pennsylvania and New Jersey. Other winners, in order, were: Dr. Lamar H. Moree, Ashburn, Ga., newly-appointed Daffin district manager in Georgia and Florida; Karl J. Swanson, Princeton, Minn.; Gerald M. Davis, Yakima, Wash.; John B. Coyne, newly-appointed Daffin district manager in the Southwest, and Albert A. Robinson, Winnipeg, Man., Canada.

Daffin Manufacturing Co., now a division of Daffin Corp., reported that December of 1959 was one of the top sales months in the company's history.

Daffin units now are operating in 39 states and in six Canadian provinces. Company officials estimate that more than 6½ million tons of feed valued at well over $350 million were processed by Daffin mobile mills for feeders in 1960. Also reported was the fact that feeds processed in Daffin-made mills last year included about 1½ million tons of commercial supplements worth about $135 million retail.

Charles F. Pierson, Daffin Corp. president, was host for the award banquet.

While the Daffin meeting was going on, a sister division, Farmhand Co., Hopkins, Minn., held a sales conference in Minneapolis.

A 1,500-mile, hour-long telephone conference was exchanged between the Daffin and Farmhand groups while the contest winners were introduced and sales objectives for 1961 were outlined.

INVESTMENT

(Continued from page 1)

customer successfully," he remarked.

Mr. Ray's predictions may not be as ominous as they sound, for he pointed out that "the commercial feed industry will continue to provide an important service to livestock producers and companies keeping up-to-date with farmers' needs and providing them efficiently will receive a satisfactory return for their capital, labor and management."

Also, he noted that "it is possible to succeed on lower volume in the feed inudstry than in the steel industry, for instance.

"U.S. Department of Agriculture research has indicated that plant production costs decrease rapidly as volume increases to about 10,000 tons per year, and there appear to be some continued economies up to about 25,000 tons per year. But there is little additional operating efficiency to be gained from a larger volume."

Trends in the Industry

Following are some of the details of Mr. Ray's discussion of trends in direct selling, end-product marketing, integration and on-the-farm mixing:

ON-THE-FARM MIXING — "I'm convinced we will see more on-the-farm mixing," said Mr. Ray, "but it will be confined mostly to farmers who produce their own grain." He noted that the home-mixing trend would expand to some extent even though "in most cases the feed industry can provide formula feed to the farmer at less cost than he can produce it himself."

Feeders who become on-the-farm mixers most likely will use some kind of concentrate or superconcentrate, according to the AFMA representative. "Only a few of the largest farmers will be able to economically go all the way to a vitamin premix or to manufacture feeds 'from the ground up'."

VERTICAL INTEGRATION—Producers who cannot obtain sufficient capital on their own, who are looking for more security and less risk and who are looking for greater and more secure volume are likely to become involved in integration, Mr. Ray said.

"Feed dealers will play an important role in some of the contract integration."

He noted that nearly all broiler production is integrated and "integration will develop fastest in turkeys and eggs, but will also increase in livestock at a slower rate."

END-PRODUCT MARKETING—Among the requirements for successful marketing of end products is "quality and quantity production according to a set schedule," Mr. Ray commented. "Pressure for coordination of most or all phases of production and marketing is increasing.

"An increasing number of producers will locate a market—then produce to match the market, instead of trying to find a market to match production.

"The feed industry will provide increasing amounts of assistance in locating the end product market and then helping to plan the production and marketing of the exact quality and quantity of the end product to be delivered at a specified date."

DIRECT SELLING — More direct selling is in the outlook, too. "More feed will be delivered directly by the manufacturer to the farm into a feeder or into a bulk bin serviced by automatic equipment so the feed won't have to be rehandled on the farm," Mr. Ray said.

"The changeover to bulk handling of feeds will increase rapidly.

"In general, the distribution method likely to be most prevalent in the years ahead will maximize efficiency through the entire process of obtaining ingredients, producing the feed and distributing it to the point where it is consumed by livestock.

"The most efficient method will tend to be the one which requires the fewest hours of labor, the least cost of transportation of ingredients and feed combined and will minimize the number of times ingredients and feed will be handled."

Mr. Ray illustrated what direct selling can do for costs by telling of an instance in which a ton of feed cost a producer $10 less when it was delivered direct for cash than when it was bought through a dealer on a 30-day deal.

PRICE SUPPORTS

(Continued from page 1)

in 1957, and one acre in eight during 1958, was farmed in compliance with the program," he said. "As a matter of fact, there never should have been an excessively high loan for corn for the reason that 85% of the crop never leaves the county in which it is raised, and since the bulk of it is fed, there is only about 15% that moves to market, so that whether the price is a little higher or lower is not of the utmost interest to producers."

He noted that this comparatively small quantity generally established the price. "If we are to have a program at all it should be for the finished products—hogs and cattle," he declared. "However, in recent years feeders have been doing very well—and without government help."

Mr. Uhlmann cited the price support experience of dairy products, "a real success story which most economists choose to ignore."

Six and a half years ago, he recalled, 1,500,000,000 lb. of dairy products were held in government storage. More realistic pricing came to pass despite strong opposition, and supply and demand for milk are now practically in balance for the first time in eight years, he said.

"We have found that where the old, outmoded price supports or acreage control laws did not apply with respect to hogs, cattle, fruits and vegetables, for example, farmers have generally done a good job of developing markets and adjusting supply to demand," he said. "Soybean producers, especially, have shown what could be done in the way of developing markets in the absence of controls and price fixing.

"The farm problem," he concluded, "is basically a government-made pricing problem. Recognition of this fact is essential if we expect to make real progress."

Walter Mayhew, Cargill, Inc., was elected president of the association, succeeding C. L. McMillan, Osborne-McMillan Elevator Co. Named vice president was John Henry, Victoria Elevator Co. Reelected were George Riebe, Riebe and Riebe Grain Co., treasurer, and Pete Stallcop, secretary.

Clearance of Tylosin For Swine Asked

WASHINGTON — The Elanco Products Co., division of Eli Lilly & Co., Indianapolis, has filed a food additive petition with the Food and Drug Administration for use of the antibiotic tylosin in swine feeds.

Elanco proposed issuance of a regulation to provide for safe use of tylosin in swine feeds at levels of not less than 10 gm. per ton and not more than 100 gm. per ton, as an aid in stimulating growth and improving feed efficiency.

Alfalfa Processors

TOLEDO, OHIO—The annual midwinter meeting and election of officers of the Alfalfa Processors Assn. will be held at the Hillcrest Hotel here Jan. 26, according to J. B. Cousino, Erie, Mich., secretary.

The film, "The Twelve Month Summer," will be shown. The meeting is scheduled to commence with a cocktail hour at 5:30 p.m. Dinner will be served at 6:30 p.m.

Intentions to Raise Turkeys in 1961

State and division	Number raised in 1960 1/			Intended for raising in 1961			
	Heavy breeds	Light breeds	Total	Heavy breeds	Light breeds	Total	Total turkeys 1961 as % of 1960
	Thousands	Thousands	Thousands	Thousands	Thousands	Thousands	Percent
Maine	45	2	47	40	5	45	96
N.H.	95	0	95	104	0	104	109
Vt.	29	0	29	27	0	27	93
Mass.	343	6	349	447	7	454	130
R.I.	26	1	27	29	1	30	111
Conn.	240	6	246	255	6	261	106
N.Y.	584	7	591	613	9	622	105
N.J.	148	15	163	166	13	179	110
Pa.	1,056	175	1,231	1,150	200	1,350	110
N.Atl.	2,566	212	2,778	2,831	241	3,072	111
Ohio	2,102	854	2,956	2,352	811	3,163	107
Ind.	2,601	329	2,930	3,513	368	3,881	132
Ill.	924	62	986	1,007	78	1,085	110
Mich.	718	90	808	800	75	875	108
Wis.	4,027	12	4,039	5,155	15	5,170	128
E.N.Cent.	10,372	1,347	11,719	12,827	1,347	14,174	121
Minn.	12,876	1,541	14,417	16,341	1,680	18,021	125
Iowa	6,810	865	7,675	8,198	1,012	9,210	120
Mo.	3,796	491	4,287	4,801	344	5,145	120
N.Dak.	832	6	838	979	10	989	118
S.Dak.	811	105	916	757	352	1,109	121
Nebr.	1,130	15	1,145	1,175	19	1,194	104
Kans.	830	47	877	936	55	991	113
W.N.Cent.	27,085	3,070	30,155	33,187	3,472	36,659	122
Del.	89	155	244	93	194	287	118
Md.	157	11	168	188	11	199	118
Va.	1,536	2,864	4,400	2,121	3,270	5,391	123
W.Va.	327	554	881	370	573	943	107
N.C.	1,692	18	1,710	2,294	27	2,321	136
S.C.	707	10	717	801	16	817	114
Ga.	314	49	363	319	80	399	110
Fla.	61	171	232	47	171	218	94
S.Atl.	4,883	3,832	8,715	6,233	4,342	10,575	121
Ky.	314	7	321	340	8	348	108
Tenn.	101	1	102	90	5	95	93
Ala.	247	27	274	303	27	330	120
Miss.	171	4	175	175	2	177	101
Ark.	1,946	132	2,078	2,133	132	2,265	109
La.	22	3	25	19	3	22	88
Okla.	1,115	90	1,205	1,213	90	1,303	108
Texas	3,710	240	3,950	4,687	204	4,891	124
S.Cent.	7,626	504	8,130	8,960	471	9,431	116
Mont.	9	0	9	9	0	9	100
Idaho	218	41	259	236	48	284	110
Colo.	1,518	25	1,543	1,759	15	1,774	115
N.Mex.	64	6	70	54	6	60	86
Ariz.	96	0	96	106	0	106	110
Utah	2,855	100	2,955	4,051	95	4,146	140
Wash.	518	7	525	590	14	604	115
Oreg.	1,261	149	1,410	1,321	119	1,440	102
Calif.	13,483	492	13,975	16,825	74	16,899	119
West. 2/	20,026	823	20,849	24,727	373	25,130	121
U.S.	72,558	9,788	82,346	89,795	10,246	99,041	120

1/ Preliminary.
2/ Includes Wyoming and Nevada to avoid disclosing individual operations.

TURKEY CROP

(Continued from page 1)

regions reported intended increases —21% in south Atlantic, 20% in west, 16% in west north central, 15% in east north central, 14% in south central and 7% in the north Atlantic regions.

Light breed growers plan to raise 10,246,000 light breed turkeys, compared with 9,788,000 in 1960. Growers in two regions plan decreases from 1960—55% in the west and 7% in the south central region. Increases planned are 14% in north Atlantic and 13% in west north central and south Atlantic regions. Growers in the east north central region plan to raise about the same number of light breed turkeys as they did in 1960.

The actual number of turkeys raised in 1961, USDA says, may vary from Jan. 1, 1961 intentions, the difference depending on growers' reactions to this report, price of feed, supply and price of hatching eggs and poults, and prices received for turkeys during the next few months.

Growers intended to produce 6% more turkeys in 1960 than 1959. The crop turned out to be about the same as raised in 1959.

California Reports Feed Law Violations

SACRAMENTO, CAL.—A number of shipments of feed ingredients which have been received in California have been in violation of the California Commercial Feedstuffs Law and, consequently, such shipments may be tagged "No Sale," reports Leo L. Johnson, secretary, California Hay, Grain & Feed Dealers Assn.

"Shippers of wheat mill by-products and soybean meal have been the greatest offenders in not meeting the weight requirements as per the weight shown on the tag or bill of sale," Mr. Johnson said. "We suspect there are several reasons for these discrepancies, however the two best guesses for these deficiencies in weights are poor supervision of weights by the shipper and weight loss due to a reduction in the moisture content while en route to the buyer.

"Since our feed laws recognize only the weights upon arrival, the shipment must meet the weights shown on the tag or bill of sale or it may be tagged 'no sale' by the Bureau of Weights and Measures. We suggest that all potential shippers take more care in weighing out and in making the necessary allowances for any weight loss through moisture reduction."

A. G. Egermayer

R. C. Woodworth

Cargill Names Two Senior Vice Presidents

MINNEAPOLIS—Albert G. Egermayer and Robert C. Woodworth, both vice presidents of Cargill, Inc., have been elected senior vice presidents, the firm's board of directors announced.

The action follows recent elections of H. Terry Morrison, chairman; Fred M. Seed and H. Robert Diercks, executive vice presidents, and Walter B. Saunders and M. D. McVay, vice presidents of the farm products firm. Erwin E. Kelm became president in August, succeeding Cargill MacMillan. The latter's brother, John MacMillan, former chairman, died last month.

Mr. Egermayer joined Cargill as attorney in 1934 after a year of pri-

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Peru's Fish Meal Troubles Result In FAO Action

ROME—An official of the Food and Agriculture Organization of the United Nations headquartered here has announced that the Marine Resources Research Institute, jointly financed by the government of Peru and a U.N. Special Fund, has been established to study and deal with problems involving Peruvian fishery resources. Also, he said, an international meeting is in the works for dealing specifically with fish meal problems.

F. E. Popper, chief of the economics branch of FAO's fisheries division, says, "The sudden, even explosive, development of anchoveta fishing off the cost of Peru"—almost all of it for fish meal—"has had world-wide repercussions." He says this Peruvian development "can serve as both an inspiration and a warning to countries seeking to develop fishery resources."

Up to 10 years ago the Peruvians caught less than 50,000 tons of fish a year. But in 1959 they caught about 40 times that amount—2 million tons —of which anchoveta and similar species accounted for 1,824,000 tons.

Complications, Problems

Mr. Popper says this dramatic development has brought with it complications and problems. Many of these problems concern the world fish meal industry and others concern possible excess exploitation of aquatic resources.

"When fishing for anchoveta was started on a large scale a few years ago, the conditions were such that the fish meal manufacturers were able to make fortunes very quickly," Mr. Popper notes. "They had no difficulty in obtaining the raw material —anchoveta—as boats could go out twice a day and come back loaded to the gunwale with fish. So, in view of the abundance of raw material, low operating costs and other favorable factors, the fish meal industry in Peru expanded rapidly, much of it financed by loans from banks and other private sources.

"Almost all the fish meal production was sold to the export market but when such large quantities became available the price for fish meal fell drastically from about $130 ton to its present level of about $75 ton. This fall has had widespread repercussions not only on the Peruvian industry but also on the fish meal industry throughout the world."

Also linked with Peru's explosive expansion in fishing are problems created in the production of guano, droppings from guano birds which feed on the fish. Mr. Popper notes that guano birds eat at least 4 million tons of anchoveta and other fish each year. He says guano is of great importance to Peruvian farmers. About 6½ million tons of guano is collected each year and of this only a little over a million tons is exported.

The Peruvian government, fearing the ultimate results of heavy an-

(Turn to FISH MEAL, page 100)

U.S. FISH MEAL SITUATION 'IMPROVED'

NEW YORK—The U.S. domestic fish meal situation was described this week as being "much improved" over last year. Better interest in domestic supplies, as opposed to import materials, has been indicated. This renewed interest, according to observers, has reduced domestic fish meal supplies.

Said one industry representative: "Prices show firmness, and even though they still are around the $90 mark, there is a possibility of advances in the near future."

Terramycin Offered For Use as Aid in Boosting Milk Output

NEW YORK — Terramycin is now being offered for use in dairy feeding as an aid in increasing milk production, announces Chas. Pfizer & Co., Inc.

"The broad spectrum antibiotic is offered for use in building dairymen's profits with mature milking cows as well as with dairy calves," said J. J. Thompson, Pfizer vice president and general manager of the firm's agricultural division.

Feed tags may now carry the claim: "Increased Milk Production—As an aid in increasing milk production of lactating dairy cows, add recommended levels to furnish 75 mg. of Terramycin per head per day. Note: When this product is used as directed, tests conducted on milk from treated animals show no residue of Terramycin."

Pfizer said that several years of nationwide research trials, directed by the firm's agricultural research center, Terre Haute, Ind., have shown that dairymen can realize $5 plus in profit per cow by feeding a Terramycin fortified ration. Company scientists said that Terramycin feeding increased milk production on the average of .87 lb. of milk daily in 17 separate feeding trials with 2,360 milking cows. Based on the use of Terramycin A/D Fortified Crumbles, the advantage over control-fed cows is equivalent to $5.68 extra return per cow per 186-day period, a company spokesman said.

The trials were conducted in six states and included different breeds. Herds ranged in size from 25 cows to 7,200. Different management practices were evident, including loose housing with milking parlor, dry lot and conventional stanchions. In most of the tests, dairymen top dressed the cow's daily grain allotment with a Terramycin fortified premix.

Tests conducted on milk from treated animals showed no residue of Terramycin when the product was used as directed, it was pointed out.

One of the new products in an expanded dairy supplement line is Terramycin A/D Fortified Crumbles, a combination of vitamins and antibiotic formulated as an aid in boosting milk production. This includes 160,000 units of vitamin A and 16,000 units of vitamin D per pound. Both vitamins serve as an additional protection for herd health, the company said.

Says South Carolina Needs More Broilers

SPARTANBURG, S.C.—Production of broilers in South Carolina is far below the number needed by the processing industry of the state, according to Dr. B. D. Barnett, head of the poultry department at Clemson College.

Dr. Barnett says he conducted a study to find a reason for the slower growth of the broiler industry in South Carolina as compared with neighboring states, since "South Carolina has all the advantages for broiler production that are held by the other southern states."

The study conducted showed that a shortage of processing facilities might exist but a subsequent survey of 20 plants revealed that they were operating at 57% of capacity. The plants could process 27.5 million birds per year by running eight hours per day, five days per week. Statistics showed that 16.9 million broilers were produced in South Carolina in 1959.

Dr. Barnett said, "The processing plants are not the limiting factor in the growth of our broiler industry. Broiler production must be stepped up considerably, if the poultry industry is to realize its full potential in this state."

BENSON ON BOARD

NEW YORK — It was announced here this week that Ezra Taft Benson, former secretary of agriculture, has been elected a director of Corn Products Co., New York.

Purina Salesman Dies

COUNCIL BLUFFS, IOWA—Lyle Wilcox, 41, Ralston Purina Co. salesman for over 10 years, died of a heart attack.

He is survived by his wife, two children, ages 3 and 5, and a brother.

CATTLE ON FEED

(Continued from page 1)

a year earlier, for an increase of 6%. The number on feed was up 48% seasonally from the 5,127,000 head on feed Oct. 1, compared with a 43% increase for the same period a year before.

In addition, 367,000 head of cattle and calves were on feed for markets in the 11 southeastern states Jan. 1. This compares with 362,000 head a year earlier, the first time that cattle on feed estimates were available in these states. The 26 states plus these 11 states give a 37-state total of 7,950,000 head on feed Jan. 1, as compared with 7,535,000 head the same date a year earlier.

The reported increase in cattle on feed, as compared with a year earlier, was larger than some persons had expected. The increase in numbers in the Corn Belt area was particularly surprising, according to some observers.

NORTH CENTRAL STATES UP 6%—Cattle and calves on feed in the north central states, comprising the Corn Belt, totaled 5,141,000 head Jan. 1, up 6% from the 4,848,000 head a year earlier. Iowa, the leading state, was down 1% while Illinois, the second ranking state was up 6%. Nebraska, the third ranking state, was up slightly. All other states in the region, except Michigan, which was down 5%, were unchanged or higher compared to a year earlier.

WESTERN STATES 5% HIGHER—In the western states there were 2,029,000 head of cattle and calves Jan. 1. The 11-state western area was up 5% from the 1,925,000 head on feed a year earlier. Eight states registered increases in numbers while three were down. California, the leading western state, was up 7%, and Colorado, the second ranking western state, was up 2%. Other increases ranged from 2% for Wyoming to 16% for Utah.

PLACEMENTS UP 7%; MARKETINGS UP 3% — Placements of cattle during the October-December quarter numbered 5,595,000 head for the 26 states, 7% more than in the same period of 1959. Shipments of stocker and feeder cattle into eight Corn Belt states (for which data are available) during the October and November period in 1960 were up 3% from the same two months of 1959, 16% more in October but 12% down in November, USDA said.

Marketings of fed cattle October-December in the 26-state area totaled 3,139,000 head, up 3% from the same period of 1959. Marketings were down 4% in the north central states but up 15% in the western states.

The number of beef steers and heifers (grading prime, choice and good) sold out of first hands for slaughter at 12 major markets October-December was 5% below the same three months in 1959. These data do not include direct sales to packing plants, mixed lots of steers and heifers and some deliveries bought on prior contracts.

WEIGHT OF CATTLE ON FEED—Of the cattle and calves on feed in the 26 states Jan. 1, those weighing under 500 lb. accounted for 17% of the total, compared with 18% the year before. The 500-699 lb. group made up 25% this year and 24% a year earlier. The 700-899 lb. group amounted to 32% and 31%, respectively. The number weighing 900-1,099 lb. was 20% as compared with 21% a year earlier, and the proportion weighing 1,100 lb. or over was unchanged from a year ago at 6%.

A breakdown of the Jan. 1 number on feed in the 26 states by weight groups shows smaller numbers than a year earlier in the under 500 lb. and over 1,100 lb. groups, but the numbers in all other groups were larger. The number weighing less than 500 lb. totaled 1,302,000 head Jan. 1, down 1% from a year earlier; the 500-699 lb. group amounted to 1,875,000 head, up 9%, and the 700-899 lb. group, 2,411,000 head, was up 9%. The 900-1,099 lb. group totaled 1,557,000 head—up 6%. But the number weighing over 1,100 lb., 438,000 head, was down 3%.

KINDS ON FEED—In the 26 major feeding states, 70% of the cattle and calves on feed Jan. 1 were steers and steer calves, 29% were heifers and heifer calves and 1% were cows and others. This is the same percentage breakdown as Oct. 1, but is one percentage point larger for steers and steer calves and one point smaller for cows and others as compared with a year before.

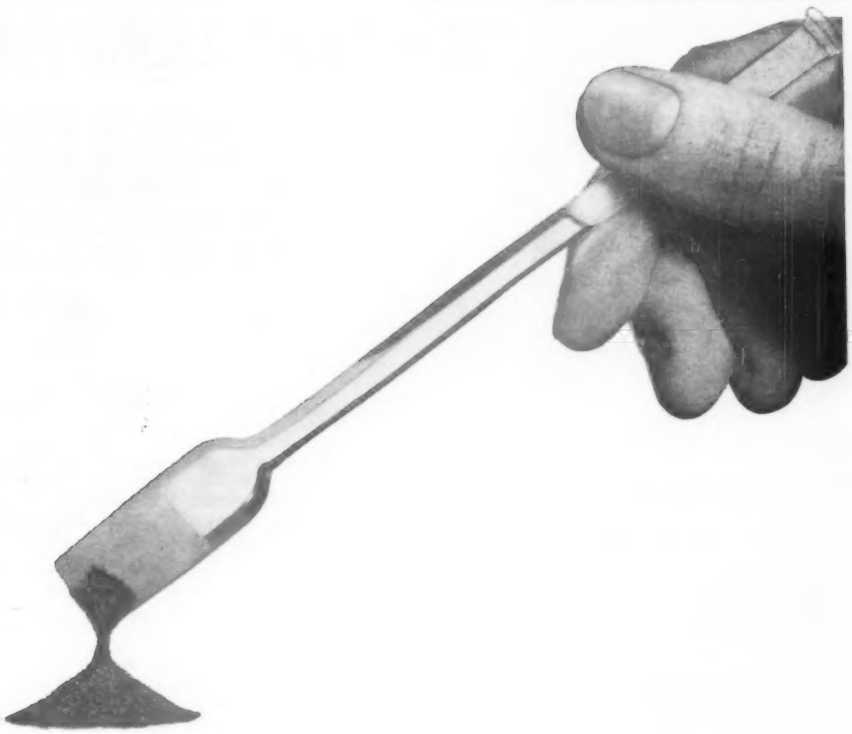
TIME ON FEED—In the 26 states, cattle and calves by length of time on feed as a per cent of the total this year and last were: under three months, 72% and 70%; 3-6 months, 24% and 25%, and over six months, 4% and 5%.

MARKETING INTENTIONS—Reports from feeders in the 26 states indicate that they intend to market 44% of the Jan. 1 number during January-March. This would be 3,323,000 head of fed cattle, 6% above the marketings of 3,125,000 head during the first quarter of 1960 from the Jan. 1 inventory. From the total of anticipated marketings during the quarter, feeders are expected to sell 30% in January, 34% in February and 36% in March. USDA says these expected marketings are based upon the usual relationships between market data and actual marketings.

TABLE 1. Cattle and Calves on Feed Jan. 1, 1961, With Comparisons*

State	Jan. 1, 1960	Oct. 1, 1960	Jan. 1, 1961	Jan. 1, 1961, as % of Jan. 1, 1960
	—1,000 head—			%
Pennsylvania	83	48	89	107
Ohio	209	94	209	100
Indiana	189	96	195	103
Illinois	688	368	729	106
Michigan	133	62	126	95
Wisconsin	121	68	121	100
Minnesota	416	252	495	119
Iowa	1,510	1,065	1,495	99
Missouri	270	174	302	112
No. Dakota	125	64	175	140
So. Dakota	247	135	289	117
Nebraska	665	504	668	100
Kansas	275	230	337	123
N. C. States	4,848	3,112	5,141	106
Oklahoma	69	49	74	107
Texas	248	206	250	101
Montana	70	41	77	110
Idaho	138	83	143	104
Wyoming	55	26	56	102
Colorado	404	367	414	102
New Mexico	54	42	53	98
Arizona	265	202	298	112
Utah	61	37	71	116
Nevada	32	10	30	94
Washington	115	96	106	92
Oregon	66	48	69	105
California	665	660	712	107
Western States	1,925	1,712	2,029	105
Virginia†	23	...	19	83
No. Carolina†	26	...	26	100
So. Carolina†	16	...	18	112
Georgia†	55	...	59	107
Florida†	46	...	62	135
Kentucky†	50	...	45	90
Tennessee†	42	...	38	90
Alabama†	36	...	38	106
Mississippi†	25	...	25	100
Arkansas†	23	...	22	96
Louisiana†	20	...	15	75
So. Atl. & So. Cent. States	362	...	367	101
26 states	7,173	5,127	7,583	106
U. S.	7,535	...	7,950	106

*Cattle and calves on feed are animals being fattened for the slaughter market on grain or other concentrates and are expected to produce a carcass that will grade good or better. †Data for Oct. 1, 1960, are not available.



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CSC TEST #23	524	$15.34
COLLEGE TEST #58	964	$13.95
COLLEGE TEST #60	300	$ 9.50
FEED MANUFACTURER'S TEST #78	12,000	$ 6.55
COLLEGE TEST #82	600	$21.85
COLLEGE TEST #83	150	$22.58

BASIS: market price of broilers 16¢ per lb.; feed cost 4½¢ per lb.; zinc bacitracin 7¢ per gram.

Doesn't it look like Baciferm is the buy for you? Baciferm's the buy for more and more feed manufacturers for both low and high level use. It's the economical antibiotic supplement for poultry and swine feeds. It contains the selectively-active antibiotic *zinc* bacitracin made exclusively by CSC under Patent No. 2,809,892. Baciferm's selective action kills dangerous bacteria fast but lets beneficial bacteria go right on producing vitamins and other valuable growth factors. College tests show that Baciferm gives full value in stimulating growth and reducing mortality. And — *zinc* bacitracin has the antibiotic stability manufacturers require.

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Artificial Light for Growing Pullets

"The reason for using lights during the growing period is to delay the time pullets start to lay. If sexual maturity is delayed 10-14 days, the birds during the laying year will lay more eggs and produce fewer small eggs."

By D. F. King
Auburn University

Use of artificial light for laying hens has been a fairly common practice for many years.

Few poultrymen, however, realize that perhaps greater benefits can be obtained by correct use of lights on pullets during the growing period. The reason for using lights during the growing period is to delay the time pullets start to lay. If sexual maturity is delayed 10-14 days, the birds during the laying year will lay more eggs and produce fewer small eggs. The same advantages can be obtained from delaying sexual maturity by restricting the feed during the growing period. However, it is believed to be easier and safer to obtain these results by proper use of light.

Sexual maturity can be delayed in growing pullets by two different light procedures: (1) restricting the length of light period each day during the growing period and keeping it constant from day-old to five months of age; and (2) starting day-old chicks on a relatively long light period each day but reducing the length of light day each week during the growing period. The choice will depend largely on the type of house available for growing pullets.

TABLE 1. Effect of Amount Light in Growing Period on Age to 10% Production and Rate of Lay for Following Four Months, Two-Year Average

Light treatment	Age of 10% production	4-month rate of lay
	days	%
All dark	167	75.4
2 hours	163	84.9
4 hours	157	83.2
6 hours	155	84.6
8 hours	152	77.8
10 hours	151	70.6
12 hours	149	84.0
14 hours	147	76.5

TABLE 2. Effect of Increasing or Reducing Light in Growing Period on Age to 10% Production and Rate of Lay for Following Four Months, Two-Year Average

Light treatment	Age of 10% production	4-month rate of lay
	days	%
Increased from 6 to 22 hours	145	79.3
Constant 14-hour day	147	76.5
Decreased from 22 to 6 hours	168	90.8

EDITOR'S NOTE: *The accompanying article by Prof. King is from "Highlights of Agricultural Research" published by the Auburn University Agricultural Experiment Station System, Auburn, Ala.*

Restricting Amount of Light

The less light pullets receive each day during the growing period the older they will be when they start laying. The effects of various day lengths on age of maturity and subsequent egg production are given in Table 1.

In comparing the average age of sexual maturity, there is a direct decrease in maturity age as the amount of light is increased. Production results show that pullets raised on a six-hour light day will outlay pullets raised under natural daylight by 20-24 eggs per hen per year. If a windowless, fan-ventilated house is available for growing pullets, the birds should receive six hours of light and 18 hours of darkness each day throughout the growing period.

Reducing Length of Day

Pullets provided a long light day when they are young with weekly decreases in day length will be older when they start laying than pullets raised on a constant 14-hour day. Likewise they will be older than pullets raised on a weekly increasing light schedule (Table 2.)

Pullets raised on a light schedule in which the day length was decreased weekly by about 40 minutes per day matured 21 days later than pullets raised on a constant 14-hour day. These and other research results indicate that this delay in maturity is a little too severe for best rate of lay for the year. It is suggested, therefore, that a weekly decrease of 15 minutes per day be used during the growing period. This light schedule can be used in an open front type house by giving the day-old chicks about five hours more light than they will receive from natural daylight when they are mature. Light is reduced weekly 15 minutes per day throughout growing period.

Either of these lighting schedules can be used for growing pullets hatched any time during the year. They are advantageous for both light and heavy breed pullets.

Recommended Wattage

When the lights are supplementing natural daylight, the bulbs should be of the size to provide one watt per bird. The bulbs should provide two watts for each bird when all light is artificial.

When the houses are supposed to be dark, they should be sufficiently light-tight that the operator standing inside cannot see white birds on the floor. Houses with dim light during the dark period are considered unsatisfactory.

Pullets raised on either light schedule may be given a constant day in the laying house or provided weekly increases during the laying period.

Birds on this growing program should be full fed. Use of restricted feed in combination with restricted light is not recommended.

Equipment Installed

CHICAGO—Forty-seven feed mills have recently installed Prater Blue Streak equipment, according to announcement by Prater Pulverizer Co. Heading the list was Wisconsin, where 12 mills installed Blue Streak equipment.

Ohio and Illinois each had eight feed mills with installations while Indiana and Missouri each had three. Minnesota and Florida each had two. States where one installation was made include: Mississippi, Michigan, North Dakota, Idaho, South Dakota, Pennsylvania, Oregon, Colorado and Arkansas.

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New Dehydrated Alfalfa Film Available

WASHINGTON — The American Dehydrators Assn. has described its new alfalfa film "Twelve Month Summer" and has explained how it may be obtained for showings.

The film traces the history of alfalfa from ancient Arabia to modern feedlot. The nutrient content of dehy is evaluated in terms of its benefits to beef cattle, dairy herds, sheep, swine and poultry.

The latest techniques of alfalfa harvesting are shown, and new findings of laboratory and experiment stations are discussed. Successful feeders describe methods they use to raise healthier stock on lower feed costs.

Centron Corp., Lawrence, Kansas, produced the color film with the technical assistance of Joseph Chrisman, executive vice president of ADA.

Members of the association, or others interested in purchasing the film, may do so by contacting the American Dehydrators Assn., 430 Board of Trade, Kansas City, Mo. Cost of the film is $75.00 per print. Agricultural groups may obtain the film for showing at no charge by writing the Farm Film Foundation, 1425 H Street, N.W., Washington 5, D.C.

Dr. K. L. Dolge Named G.L.F. Nutritionist

ITHACA, N.Y. — Dr. Kendall L. Dolge has been appointed animal nutritionist for Cooperative G.L.F. Exchange, Inc., the position formerly held by the late William D. McMillan. The appointment was announced by John S. Gallick, manager of the G.L.F. mills division.

To be located at division offices in Buffalo, N.Y., Dr. Dolge will develop standards and specifications for formulas of G.L.F. dairy and livestock feeds. His position calls for maintaining contact with experiment stations and industry researchers, to appraise their findings in the field of nutrition.

Dr. Dolge, 36, is a native of Worcester, Mass. He earned B.A. and M.S. degrees at the University of Connecticut, and a Ph.D. in animal nutrition at Cornell in 1955.

He taught and did research work, primarily on nutrition of the dairy calf, at the University of Connecticut from 1950-56. In the next three years he was with the research department of Wirthmore Feeds, Waltham, Mass., then joined Corn Products Sales Co., New York City, where he sought ways to improve and develop new by-products from the corn wet milling industry.

FORMULA FEED PLANT

CLEAR LAKE, S.D.—The Farmers Elevator Co. here has completed a $60,000 formula feed plant.

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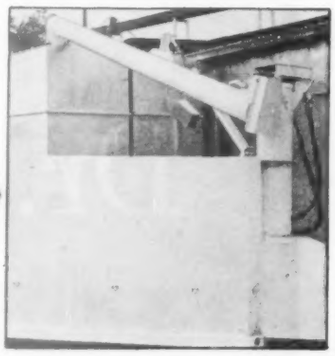

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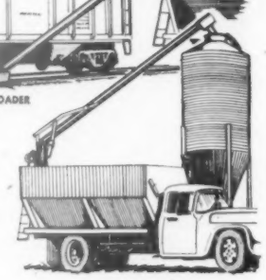

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Tests prove that during the range phase of a turkey's " span of life," Dr. Salsbury's Histostat-50 scores highest in weight gain, feed efficiency, fleshing, and blackhead prevention. The 1959 Turkey Disease Control Report,published by the University of Minnesota, summarizes research showing that Histostat-50 prevents blackhead best. Histostat-fed birds had **better fleshing,** they were best in **feed efficiency** among all commercially available compounds tested, and Histostat-50 birds had the **highest average weights** in the test. These are profit-building extras your feeds can provide. Last year more turkeys were fed on Histostat-50 than ever before—and with a high degree of profit as a result. This year, more millions—yes millions!—of turkeys will be protected with Histostat-50. See that it's in your feeds. Write, wire, or phone for complete information.

Dr. SALSBURY'S LABORATORIES
Charles City Iowa

— A SYMBOL OF SERVICE

SEMINAR PANEL—Oklahoma State University scientists who participated as panelists for the first in a series of industry-university nutrition seminars in Oklahoma City are, left to right: Dr. Linville Bush, department of dairying; Dr. Leon S. Pope, Dr. Arnold Nelson and Dr. Allen Tillman, all of the department of animal husbandry.

Oklahomans Organize Series of Seminars

STILLWATER, OKLA.—A series of industry-university nutrition seminars has been organized by Oklahoma State University in cooperation with industry for discussions of current feeding problems and presentations of latest research findings as they apply to these problems.

The first conference in the new series was conducted at the Skirvin Hotel in Oklahoma City Dec. 2 and the second is scheduled at the same site Jan. 27, it was reported by Dr. Rollin H. Thayer of Oklahoma's poultry science department.

A panel of faculty members from the university's departments of animal husbandry and dairying discussed ruminant nutrition at the first seminar. Panelists included: Dr. L. S. Pope, Dr. Arnold Nelson, Dr. Allen Tillman and Dr. Linville Bush. Members of the Oklahoma Feed Manufacturers Assn. were present.

Poultry nutrition, with special emphasis on growing turkeys and laying hens, will be discussed at the Jan. 27 seminar. The panel for this meeting, which will be drawn from the university's poultry science department, will include: Dr. Thayer, Kenneth E. Dunkelgod, Earl W. Gleaves and Lealon V. Tonkinson.

The seminars have been planned on the basis of three or four meetings per year. Future conferences will be scheduled for late spring and early fall.

Ontario Turkey Assn. Convention Announced

HAMILTON, ONT.—Of interest to turkey men and feed men alike will be two panel discussions on the program of the 33rd annual meeting of the Ontario Turkey Assn. here Jan. 31-Feb. 1. They are entitled "Complete Feed or Home Mix" and "Grain and Concentrates vs. Complete Feeding."

An answer to the convention theme, "Will '61 Be Overdone?," is expected to be of considerable interest to feed men also.

Matters to be discussed include condemnations of turkeys in processing lines, enlargement of the scope of compulsory grading and inspection and the perennial question of a turkey hatching egg tariff increase.

According to the group's secretary-manager, K. Samis, in 1961 the number of extra hatching eggs imported could well spell the difference between a reasonably good marketing season and one too much like the year of 1959 when overdoing production got the industry into give-away price troubles.

Among the speakers will be: Prof. J. R. Cavers, Ontario Agricultural College, Guelph, "Turkey Marketing Trends," and John Hough, editor, Turkey World, "Turkey Selling of Tomorrow."

Over 400 persons are expected to attend the meeting and the association reports that all available exhibit space has been sold.

USDA Reports on '60 Dairy Price Supports

WASHINGTON—Dairy price-support purchases during calendar year 1960 amounted to 145.3 million pounds of butter, 300,000 lb. cheddar cheese and 872.2 million pounds of nonfat dry milk, the U.S. Department of Agriculture reported in a year-end summary of dairy price-support activities.

In addition to the 872.2 million pounds of nonfat dry milk purchased for price support, 42.5 million pounds were purchased directly with Section 32 funds for domestic donation programs.

Purchases of butter and nonfat dry milk in 1960 were higher and cheese purchases lower than purchases in 1959, when 123.7 million pounds of butter, 737.9 million pounds of nonfat dry milk and 57.2 million pounds of cheese were acquired under support operations, the USDA reports.

Approximately 832 million pounds of dairy products were moved into useful channels during 1960. This total includes 129.4 million pounds of butter, 7.4 million pounds of cheese and 694.8 million pounds of nonfat dry milk, it is reported.

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Howard Gordon Heads National Co-op Group

NEW ORLEANS, LA.—Howard H. Gordon, general manager of Southern States Cooperative, Inc., Richmond, Va., was elected president of the National Council of Farmer Cooperatives at the closing session of the organization's 32nd annual meeting at the Jung Hotel here. The council is a nationwide association of farmers' marketing and purchasing cooperatives which serve some 2,750,000 farm memberships.

Paul A. Dobson, president of Diamond Walnut Growers, Inc., Stockton, Cal., was elected first vice president, and Howard A. Cowden, president of Consumers Cooperative Assn., Kansas City, was elected second vice president.

Named as executive committeemen-at-large were W. D. Milsop, general manager of Eastern States Farmers' Exchange, Inc., West Springfield, Mass., and Robert A. Shone, Santa Rosa, Cal., president of Nulaid Farmers Assn., San Leandro, Cal.

Homer L. Brinkley, Washington, D.C., was reelected executive vice president, the council's chief executive officer.

It was reported that in a series of resolutions adopted at the first session of the 32nd annual meeting, official delegates from member organizations adopted a strong policy statement favoring clarification of laws "to make it clear that farmer cooperatives have the right to grow in competitive strength and to merge and consolidate, form joint selling agencies and other means to create an economic structure to assure farmers equality of opportunity to earn their equitable share of the national income."

The 1956 cooperative tax policy was re-affirmed, continuing the authority in the council's executive committee for the implementation of the policy.

J. Rutter, W. Soule Head Feedlot Staff

MINNEAPOLIS — The appointments of James K. Rutter as editor and Wayne M. Soule as advertising sales manager of Feedlot, a national farm business magazine for cattle and lamb feeders, have been announced by Milton B. Kihlstrum, president of the Miller Publishing Co.

Mr. Rutter joined the publishing firm in March of last year and was assigned to special editorial projects. He formerly was managing editor of Wallaces' Farmer.

Mr. Soule joined the firm in April of last year. Prior to joining the sales staff he was in the advertising sales department of the Mankato (Minn.) Free Press.

FINEST QUALITY

TRADEMARK—Trademark pictured here was designed to emphasize equipment built by the Union Special Machine Co., Chicago.

Union Special Machine Has New Trademark

CHICAGO — Union Special Machine Co., Chicago, maker of industrial sewing machines, is marking its 80th anniversary with a new trademark to emphasize the equipment it builds. By this means, the company intends to focus attention on principles embodied in the firm's products since founding in 1881, it was reported.

The new Union Special trademark uses the initial letters of the firm name in a distinctive design. It will be used for identification on machines, accessories and elsewhere in conjunction with the company name.

Midwest Feed Group Directors Elected

KANSAS CITY — The Midwest Feed Manufacturers' Assn. has announced the election of 12 directors of the group for three year terms, beginning Feb. 1.

Reelected to the board were: Bob Greenlee, Nutrena Mills, Kansas City; Ray Ammon, The Quaker Oats Co., St. Joseph, Mo.; Larry Alley, Pay Way Feed Mills, Kansas City, and Charles Harris, Burrus Feed Mills, Ft. Worth.

New members of the board include: Phil Wake, Wake Feed Mill, Oskaloosa, Iowa; J. J. O'Connor, Walnut Grove Products Co., Atlantic, Iowa; Kenneth Winterscheidt, Winterscheidt Milling Co., Seneca, Kansas; Pete Rea, Red Comb Pioneer Mills, Marshall, Mo.; Clarence O'Brian, Crete Mills, Crete, Neb.; Haskell Cudd, Stillwater Milling Co., Stillwater, Okla.; W. O. Dillon, Jr., Vinita Hay & Grain, Vinita, Okla., and W. R. (Bill) Archer, Jr., Uncle Johnny Mills, Houston, Texas.

S.D. ELEVATOR GROWS

HURLEY, S.D. — The Farmers Union Elevator Co. here announce completion of a 24x24x57 ft. warehouse and 44x16 ft. driveway. New installations include a feed grinder, roller mill and 3 ton feed mixer.

NEW MILL—The new mill of the Ritemix Milling Co., McCook, Neb., is shown above. The new facility with a 200-ton-per-day capacity manufactures Ful-O-Pep feeds. The firm also features custom steam and dry rolling and mixing. Facilities of the new plant include 21 bulk tanks and there are four bulk or bagged delivery trucks, according to Fred Wacker, secretary of Ritemix Milling Co.

FEEDING SCOTCH O LASS PAID OFF FOR ME!

Fred Kyburz of Chatsworth, Illinois, is a dairy farmer. He has a herd of Holsteins, and here's what he has to say about Scotch O Lass:

RECOMMENDED BY MY DEALER—"On the recommendation of my dealer, Bill Sterrenberg of the Charlotte Farmers Grain Company (Charlotte, Illinois), I have been mixing 100 pounds of Scotch O Lass to each ton of my rations. I find that it helps to encourage greater water and feed consumption—necessary for increased milk production and butterfat content.

A happy customer and a happy dealer, the Kyburz with Bill Sterrenberg of the Charlotte Farmers Grain.

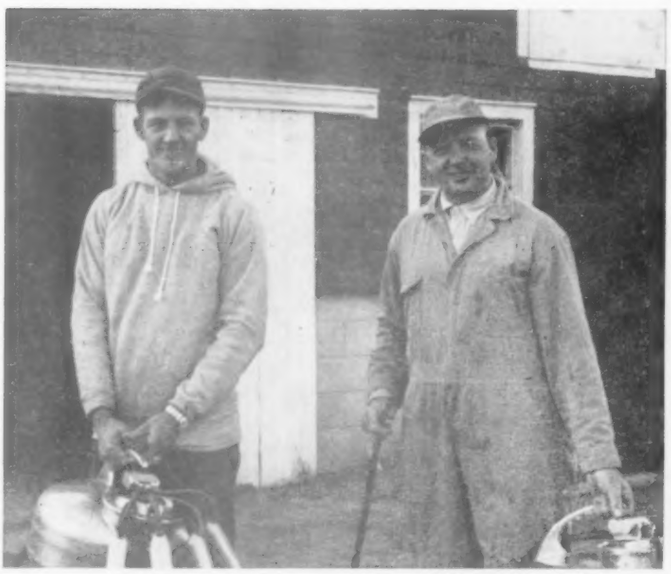
Higher Production

"It steps up their appetites and gives them a nice coat. I use it to get my calves on feed, too. In 1958, my peak year, my average was 577.8 pounds of butterfat per cow with a milk average of 13,450 pounds per cow."

"I wouldn't grind or mix without Scotch O Lass."

Top Rated Farm

With a top quality ration and an excellent management program, the Kyburz farm placed first in the Illinois Dairy Herd Improvement Association Program in 1958. Again in 1959, Kyburz placed 8th in the same program (out of 1700 Holstein herds).



Fred and son on their way to the parlor for another profitable milking session.

A part of the high producing, top rated, Kyburz herd.

One of Fred Kyburz' Holsteins and his son, Bob

IF YOU MIX . . .

You, too, will be glad you recommended Scotch O Lass to your customers. Add Scotch O Lass to your inventory today. It's the product you can buy with confidence and sell with pride. Ask your distributor salesman about Scotch O Lass.

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10th New Hampshire Poultry Health Event Program Announced

DURHAM, N.H.—The 10th annual University of New Hampshire Poultry Health Conference to be held here Feb. 1-2 will feature a wide variety of topics including "Use of Feed Additives in the Control of Disease" and "Broiler Condemnations and Down Grading."

The two day event to be held at the university's Memorial Union here is sponsored by the University of New Hampshire poultry department and cooperative extension service.

On the program for the morning of the first day is an "Ask the Experts" panel of state pathologists to answer questions on diagnostic laboratories in an informal session. Members of the panel include: Dr. C. I. Angstrom, director, Regional Veterinary Laboratory, Kingston, N.Y.; Dr. Dank Morris, chief, Georgia Poultry Laboratory, Gainesville, Ga.; Dr. George Faddoul, University of Massachusetts Regional Laboratory, Waltham, Mass., and Dr. Alan Corbett, University of New Hampshire Diagnostic Laboratory, Durham, N. H.

The afternoon program the first day will include the following speakers and topics: Dr. P. P. Levine, New York State Veterinary College, Ithaca, N.Y., "Egg Immersion and Other New Developments in Controlling CRD"; Dr. Kenneth L. Heddleston, U.S. Department of Agriculture Animal Disease and Parasite Research Division, Beltsville, Md., "New Findings in the Control of Fowl Cholera"; Dr. George Faddoul, University of Massachusetts, Waltham, Mass., "The Recovery and Typing of Salmonella Organisms for the Year 1960," and Dr. George Christie, veterinary pathologist, Eastern States Farmers' Exchange, West Springfield, Mass., Robert Bickford, Jr., research department, Wirthmore Feeds, Inc., Waltham, Mass., and Richard Strout, parasitologist, University of New Hampshire poultry science department, "Reappraisal of Coccidiostats and Coccidiosis Vaccination."

A banquet the first evening of the event will feature a talk on "Kennedy's Foreign Policy" by Dr. J. T. Holden, chairman, department of government, University of New Hampshire.

During the morning of the second day of the meeting, the following speakers are scheduled to appear: Dr. Dank Morris, chief veterinary pathologist, Georgia Poultry Laboratory, Gainesville, Ga., "Broiler Condemnations and Down Grading"; Dr. Steven C. King, chief, Poultry Research Branch, U.S. Department of Agriculture, Beltsville, Md., "Progress in Controlling Leucosis," and Dr. C. I. Angstrom, director, Regional Veterinary Laboratory, Kingston, N.Y., and Stanley Smith, director, poultry nutrition, G.L.F., Ithaca, N.Y., "Our Experiences in Controlling Capillaria Worms."

The final afternoon's program will include a talk on "Use of Feed Additives in the Control of Disease" by Dr. John Hammond, research director, O. A. Newton & Son, Bridgeville, Del.

A final panel with all speakers participating in answering questions from the audience will be moderated by Dr. J. L. Rountree, Samuel Lipman & Sons, Augusta, Me.

R. L. Frey Named to Dawe's Far East Post

CHICAGO—Charles C. Dawe, chairman of the board and founder of Dawe's Laboratories, Inc., has announced the appointment of Robert L. Frey as general manager of marketing activities for the Far East. Mr. Dawe is traveling in the Far East to introduce Mr. Frey to the friends of Dawe's Laboratories, Inc., in the area.

In his new position, Mr. Frey will live in Hong Kong and work with the firm's distributors in the sale of Dawe's feed fortification products and poultry breeding stock in the Far Eastern area.

A graduate of the University of California school of chemistry, Mr. Frey is experienced in international sales. Prior to joining Dawe's Far East division, Mr. Frey was with Ekco Products Co. for seven years as export sales manager. In that position, he made sales trips to every continent. He recently completed a trip around the world as a member of a U.S. Department of Commerce Trade Commission servicing Iran and Afghanistan.

FEEDING COMPANY FORMED

PHOENIX, ARIZ.—McReynolds Feeding Co., Inc., has filed articles of incorporation, listing $600,000 authorized capital stock to conduct custom feeding operations for the feeding of all kinds of livestock; to manufacture, buy and sell feed for all kinds of livestock; to conduct and operate stockyards and feeding pens. Incorporators are B. J. McReynolds, Casa Grande; Mary Elizabeth McReynolds and Howard H. Karman, lawful agent. The McReynolds are directors.

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Sterling Water Softener Salt—A Sale-a-month. Here's a steady money-maker that brings people to your store regularly. It creates the opportunity for you to sell these people other products. City and country home, farm, industrial and institutional business is available to you. And Sterling is the really complete line of water softener salt for all units. Promote Sterling Water Softener Salt. 50- and 100-lb. bags of Sterling Rock Salt or the all-purpose Sterling Brine Buttons are real profit-makers.

Sterling Blusalt and Sterling Granulated Salt for grist mixes and free choice feeding—in bags or blocks—are steady profit-makers all year 'round. Blusalt contains salt plus iron, manganese, sulfate sulfur, iodine, copper, cobalt, zinc—all essential for more meat and milk production. And if you're mixing feed, there's a Sterling trace mineral mixing salt specifically designed to meet your needs. For farm flocks of sheep, offer Sterling Green'salt—trace mineral salt plus 10% pheno.

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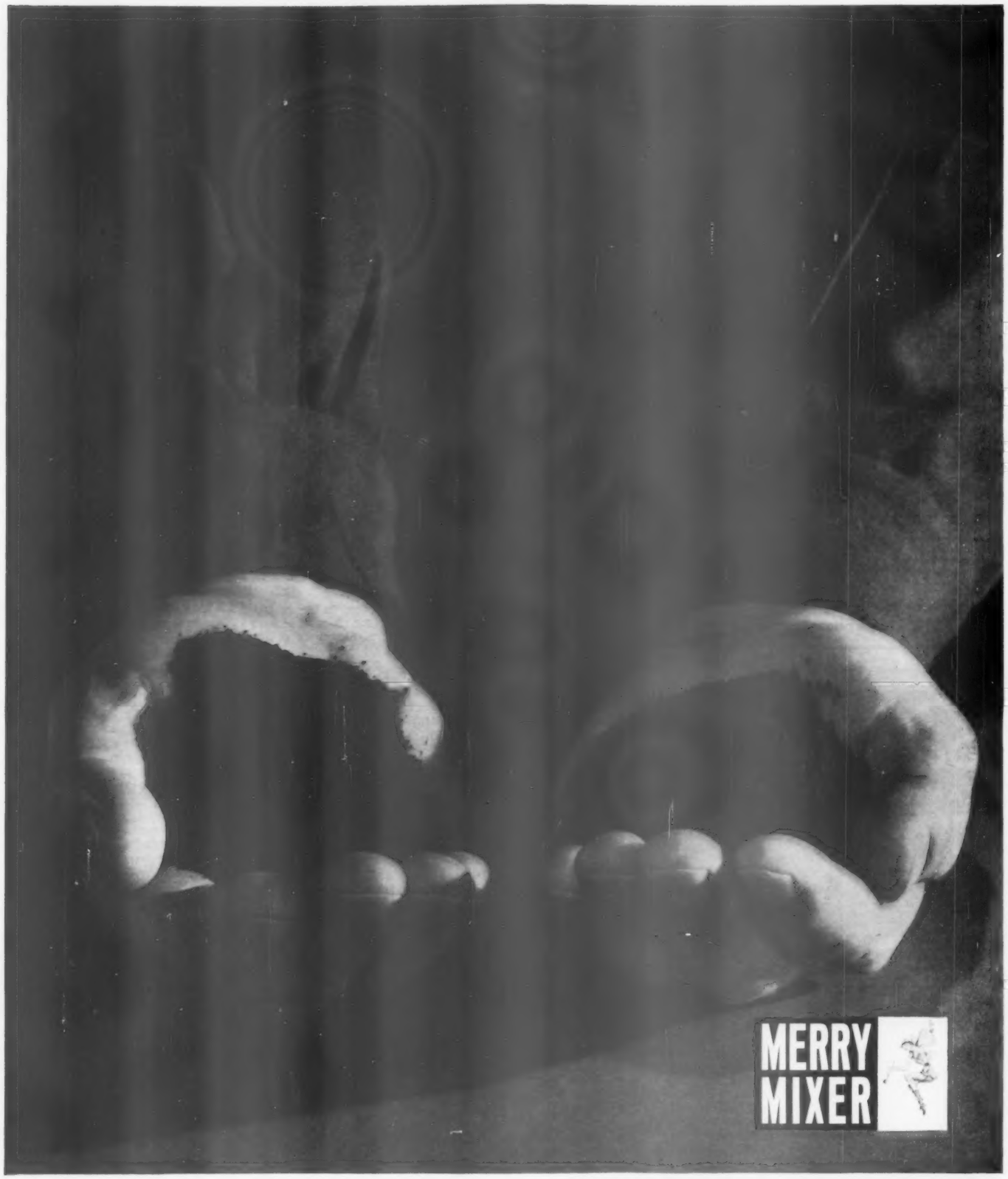

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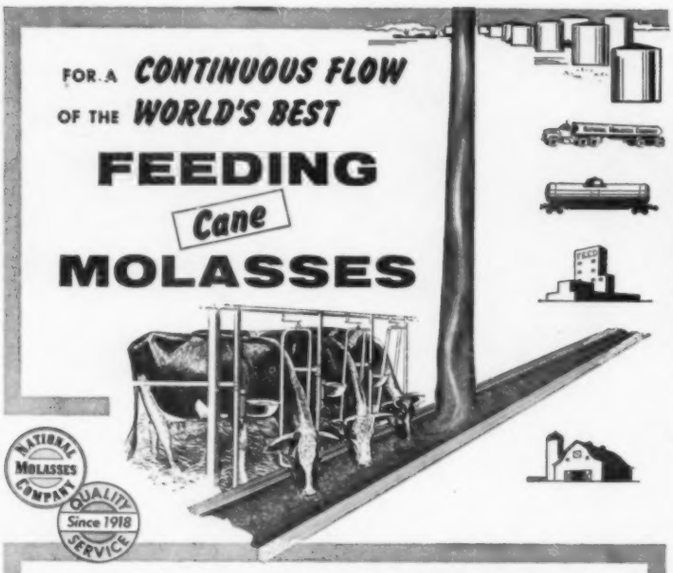

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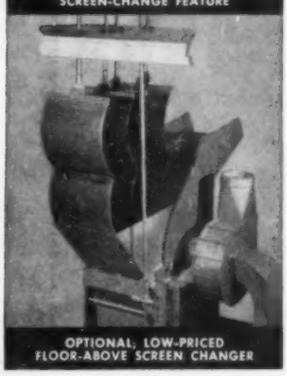

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FARMERS SUPPLY CO—Here's an exterior view of the Farmers Supply Co., a feed firm in Avalon, Wis. that does $1.5 million volume annually. Note driveways from left to right: drive for delivering grist to mill; drive where customers receive processed molasses feed; pair of driveways at rear of truck in foreground—one to receive oats and the other to receive corn for shelling. Driveway at far right is used by truckers to pick up shelled corn.

Keen Desire to Serve Yields $1½ Million Volume

By Al P. Nelson
Feedstuffs Special Writer

What business ideas are required to attain a volume of $1.5 million in a small town area with a trade radius of about 7 miles?

In the case of Farmers Supply Co., Avalon, Wis., which reached the $1½ million volume last year, there is no magic formula, according to Louis Lader, Jr., owner. His firm has a variety of grind and mix services, plenty of equipment and a keen desire to serve customers. These are the business principles which make this mill one of the most popular in the region.

When a state farm group toured the mill last summer on a field and mill program, one farm leader publicizing the tour said, "Farmers Supply Co. is one of the largest grind and mix operations in Wisconsin."

Mr. Lader bought a small mill in Avalon in 1936 and has steadily improved it year after year. He handles Murphy, Red Comb and Purina feeds. An outstanding feature is that he attains a large volume of business in a relatively small area which he cultivates extensively.

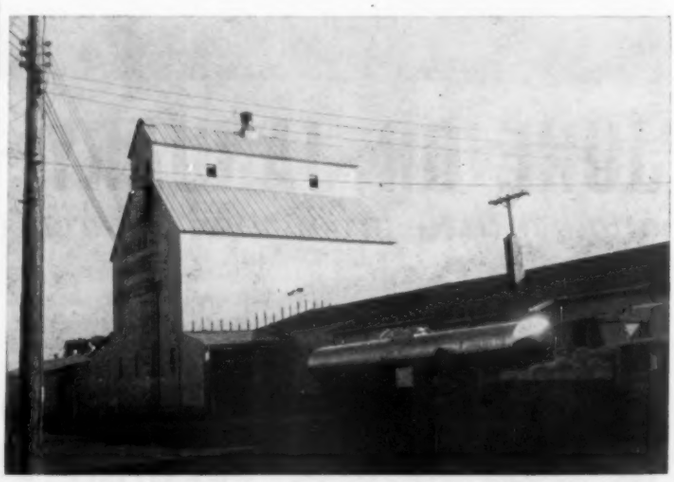
"We have three full time mill men," says Mr. Lader. "On last year's volume, each man was responsible for processing 4,690 tons. In addition, we sell about 10 carloads of feed per month. Grinding charges are 10¢ cwt. and mixing is 5¢ cwt. On coarse grinds we make no charge for mixing. Our average grind and mix job is about 2 tons."

Most Bring In Grain

Many custom millers use a grain bank plan to assure a steady grind and mix volume from a large number of customers. But the Farmers Supply Co. has no grain bank plan to speak of. Seventy-five per cent of the customers, according to Mr. Lader, regularly bring in their own grain to be ground.

The Lader firm calls for the grain of 25% of its customers, brings it to the mill, processes it and hauls it back to the farm. The charge for this

BULK TRUCK—The 7-ton bulk truck pictured here delivers about 25% of all grind and feed business for the Farmers Supply Co., Avalon, Wis., says Louis Lader, Jr., owner.



SIDE-ANGLE VIEW—The angle of this picture reveals part of grain elevator and office headquarters at the Farmers Supply Co., Avalon, Wis.

GRAIN DRIER—Grain drying is one of many services offered customers of the Farmers Supply Co., Avalon, Wis.

haul-in, haul-back service is $2.00 per ton with a $3.00 minimum.

"These figures show," states Mr. Lader, "that a large majority of our customers bring their grain here themselves, wait until it is processed and then haul it back. They know our reputation for fast, efficient service, so I suppose they don't mind waiting a little while. These customers, too, like to save the hauling charge, and they like to keep in contact with us here at the mill while their grain is being processed."

Mr. Lader points out that his customer grind and mix list breaks down as follows: Dairy feed, 30%; hog feed, 30%; steer feed, 20%, and poultry, 20%.

To handle such a huge volume of grind and mix business—and very little is on an appointment basis—this firm has a large amount of machinery which enables the staff to process 2 tons of bagged feed in about a half hour and a ton in 20 minutes, according to Richard Van Landingham, plant foreman.

Grinding equipment consists of a 90 h.p., 21 in. Bryant, a 75 h.p. 21 in. Jacobson and a 60 h.p. Robinson attrition mill. The mixers are: a 2-ton Strong-Scott, two 1-ton Strong-Scotts, a 1-ton Brower, and one Wenger molasses mixer.

The firm also has a Roskamp oat huller and roller, and a Union Iron Works corn sheller. Considerable oat hulling and corn shelling is done here.

Driveway Purposes

There are three drives at the mill. One double lane drive on the left side of the mill is for receiving grist and for delivering molasses feed to customers. Another double lane drive at the center of the mill receives oats for the huller and grain for burr mill. The other lane receives corn for the corn sheller. The third drive is a single lane and here truckers can pick up shelled corn. The firm sells shelled corn, and the various receiving and loading drives facilitate this operation without slowing up grind and mix operations.

The mill has an electric cob bin unloader which is used a great deal. An endless belt arrangement takes cobs from the storage bin and dumps them into a waiting truck. These cobs are delivered to farmers at $2.00 per load, or given away if the farmer does the hauling.

"This has proved to be an efficient way to dispose of cobs from our extensive corn shelling operation," reports Mr. Van Landingham.

In the mill there are nine overhead wooden bins which hold 750 bu. each. Grain for grinding, and bulk concentrates are stored in some of these bins. Three bins directly above the mixers hold 2 tons each.

Grain for the feed mill is stored outside in an elevator with a 36,000 bu. capacity. Grain is weighed for storage on a 50-ft., 50-ton Fairbanks scale. The Farmers Supply Co. also stores government grain, and has 280,000 bu. in storage at present.

"We operate 11 trucks," reports Mr. Lader. "We have a 7-ton Gaddis bulk truck, six 1½ ton trucks and four pickups. We do a great deal of the service for our truck fleet such as greasing and changing oil. We can also handle minor mechanical repairs. My brother has a garage in Sharon where major repair work is done."

Purina and Murphy resale men

(Turn to page 22)

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THE DOW CHEMICAL COMPANY DOW Midland, Michigan

MOLASSES FEED BAGGING—An employee of the Farmers Supply Co., Avalon, Wis., is pictured here bagging molasses feed to be called for by one of the firm's many customers.

work regularly with Mr. Lader visiting feeders in the area. In addition, Mr. Lader and his feed suppliers hold periodic educational meetings at the mill or at local halls or church basements. In this way practically all customer's feed problems can be discussed thoroughly and solved.

"We are not what you would call a high pressure selling organization," states Mr. Lader. "We try to give the farmer a complete feed service and are willing to help him with any feeding problem."

While the firm's bulk truck is busy with 25% of the customers, another 75% call for their own feeds in bulk or in bag. Dairy farmers are slow in taking to bulk service, the management reports, but many are gradually swinging over as they provide greater feed storage space.

"We don't have pelleting service as yet," states Mr. Lader, "but it may come when the demand gets stronger."

There is no newspaper in this little town; therefore, Mr. Lader advertises in the nearby Janesville, Wis., Gazette on a daily basis. He also uses spot ads on a Janesville radio station three times a week.

There is not a great turnover in farm owners and tenants in this area and Mr. Lader knows practically all farmers in his trade territory. Some he has known for many years. He thinks it is due to such farmer relationships that his firm does not have many worrisome delinquent accounts at the moment.

If an account runs up to 90 days and is still unpaid, Mr. Lader usually gets such accounts to sign a discountable note, and they have been meeting such obligations when due.

"We are constantly alert to improvements in feeding and are willing to work with our customers on their own formulas," says Mr. Lader. "I think this helps to build good will and volume."

Nitrofuran Tests At Kentucky Told

LEXINGTON, KY.—University of Kentucky experiment station swine researchers report that when nitrofuran compounds were added to rations of weanling pigs raised on pasture and on dry-lot, both lots showed improved rates of gain and better feed efficiency.

Nitrofuran is a medicant that has been used with success in prevention of swine scours.

The experiment, conducted at Princeton experiment substation by Dr. C. E. Barnhart and J. R. Overfield, used 80 Duroc pigs averaging 55 lb. at the start of the test. Four ration "treatments" were used. One was a ration without nutrofurans, for control purposes; the second used 4 lb. of NF-180 (a nitrofuran) per ton of feed; the third, 4 lb. of NF-67 (another nitrofuran) per ton, and the fourth, a pound each of NF-67 and NF-180 per ton of feed.

The researchers said that the average daily gains and feed efficiency ratings were not much better than the controls, but that each of the nitrofurans improved rate-of-gain and feed efficiency some.

In the pasture group, the NF-180 and NF-67 combination brought an average daily gain of 1.32 lb. These pigs used 327.4 lb. of feed per 100 lb. of gain. This ration treatment was better than the controls or other levels of nitrofuran used. In the dry-lot group, the NF-180 and NF-67 combination caused a 1.47 lb. average daily gain and a 329.4 lb. feeding efficiency. This was about the same as the 4-lb. NF-67 ration, where the average daily gain was 1.48 lb. and the feed efficiency, 329.9 lb.

The controls in pasture averaged 1.14 lb. daily gain, and 351.7 feed efficiency. On dry-lot it was 1.42 lb. daily gain and 335.6 feed efficiency. These figures, the researchers said, show there were not "tremendous differences," but that the nitrofuran additives were "very helpful" to gain and feed-efficiency figures.

Mississippi Co-op Seeks Mill Investors

HATTIESBURG, MISS. — Mississippi Federated Cooperative is planning construction of a $250,000 feed mill here pending local subscription of $100,000 in class "B" preferred stock in the corporation, it has been announced.

The mill would be built on property obtained in Hattiesburg earlier through purchase of a fertilizer plant.

According to Ernest Spivey, MFC manager, the mill would manufacture a complete line of Clover Brand feeds for dairy cattle, beef cattle, swine and poultry. Capacity of the planned unit is 50 tons per hour.

Mr. Spivey emphasized that the "Federation is investing its own capital in the project but is asking business people and farmers of the Hattiesburg area to purchase the class 'B' preferred stock as an expression of cooperation." The stock bears 5% interest paid annually and is redeemable upon demand under the cooperative's stock redemption plan.

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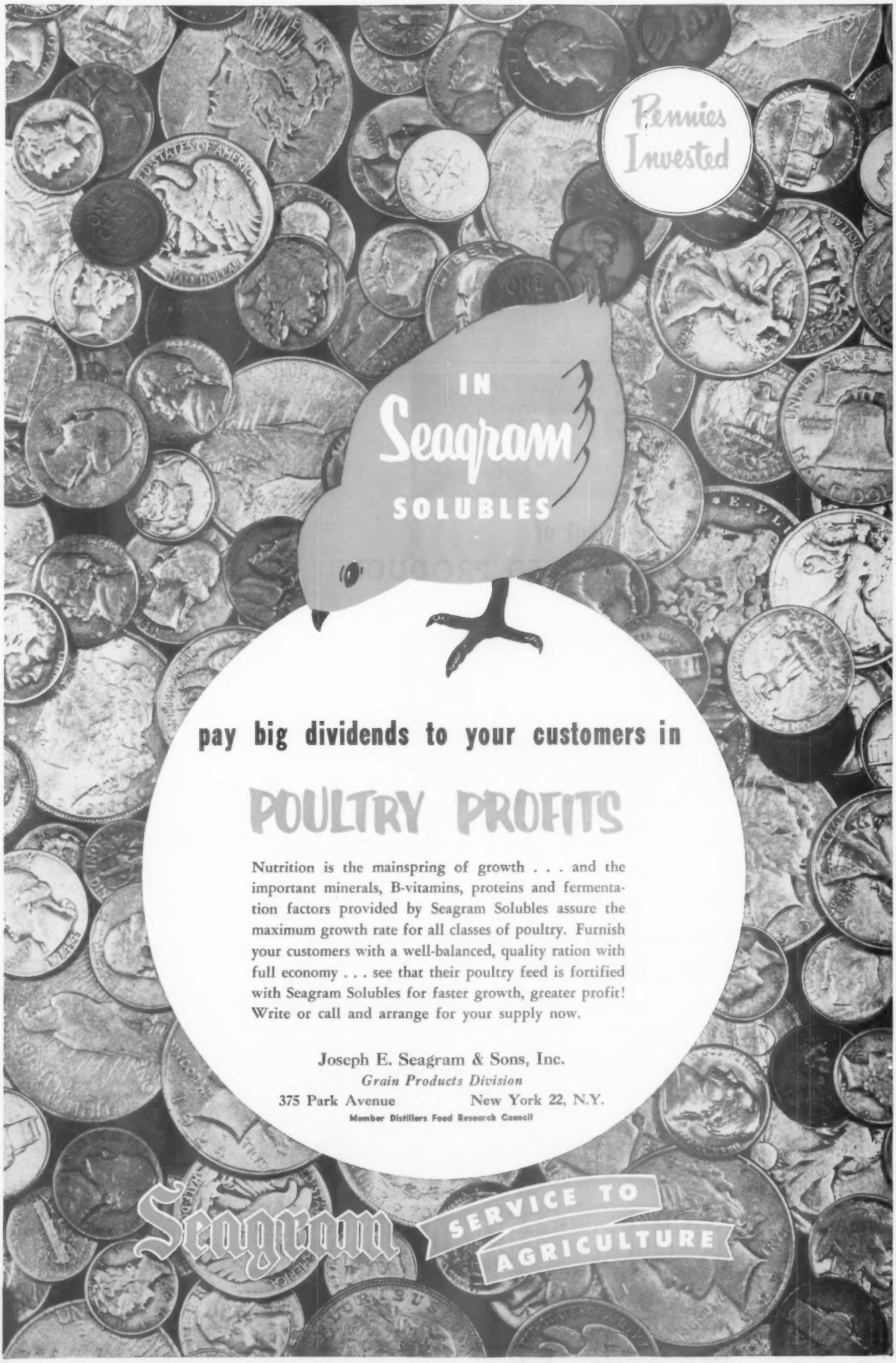

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FEED CONTROL COMMENT

By BRUCE POUNDSTONE
Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

Drugs, Antibiotics and Additives in Feeds

Dr. Julius Hauser will be credited as driving home to the feed industry the full meaning of FDA's interpretation of the law they administer concerning drugs, certificate antibiotics and food additives in animal feed. His remarks were made before the feed industry liaison committee in Washington, Nov. 18, 1960. His printed statement was awaited with great interest and released late in December.

His talk entitled "Feed Industry's New Drug Obligations" (Feedstuffs, Dec. 24, page 3), but it might well have read "FDA's Obligation in Enforcing the Mandate of the Law." Of special interest is his statement that every final mixer of an ingredient classified as a new drug, certificate antibiotic or food additive must comply with the provisions of the covering regulations by having an NDA or an Antibiotic Form 10 or both and clearance under the Food Additive Amendment if such be necessary. These are to cover the end product. And this, or these, can only be issued by FDA direct to the final mixer for each batch of mixed feed manufactured on a custom basis or each product if sold over the counter.

This should come as no surprise. It has been "in the cards" all along. FDA has emphasized over and over that there was no general provision for custom mixing of these products in feeds as such use is not approved in the NDAs issued thus far. Feed Control Comment, a little over a year ago, Jan. 9, 1960, carried the following sentence: "Effective new drug applications are given for specified uses and these do not include a custom mix." It is with Dr. Hauser's explanation that this comes home to some of us.

The concept of these provisions applying to the end product applies with equal emphasis to formulas "prescribed" by veterinarians. Unless such a prescription coincides with a commercial product already cleared, such formulas would obviously be batch or custom mixed and, thus, each end product subject to having an effective NDA or an Antibiotic Form 10 or clearance as a food additive. It may soften this news some to have Dr. Hauser say, "New drug substances similarly cannot be marketed within the jurisdiction of the act for use in compounding medications for humans on prescription of a medical doctor. The reason is the same in both cases —consumer's safety, man or animal."

This leads us to the point of what this is all about. Anyone who has had close personal contact with any of the new drugs, certifiable antibiotics or food additives and is in a position to discuss the matter must surely have a great respect for the work of FDA in their caution, even though it may be termed extreme by some. Regardless of the personal views of each feed mixer, veterinarian or feeder, such a policy at least leads to an awareness of hazards that might otherwise not be fully appreciated.

For the time being the following course is open to the feed mixer: Comply with the provisions as set forth; do everything possible to help speed up the procedures so as to avoid delays; apply as far in advance of need as possible. By the exercise of care by all concerned it will become clear where hazards are at a minimum and restrictions can be gradually relaxed to the point of getting many of these products reclassified so as to permit more general and less restricted use. Demonstration of safety is the best prerequisite to any modification in the regulation.

Thompson-Hayward Appointment Told

KANSAS CITY — Appointment of Glenn O. Munger to the newly created position of grain sanitation director in the Agricultural Chemical Division of Thompson - Hayward Chemical Co. here has been announced.

Glenn O. Munger

Mr. Munger's duties will include heading the sales of all products and services connected with grain and food sanitation, food storage and food transportation, the announcement said.

For the past two years Mr. Munger has acted as president of Technical Consulting and Services, Inc., Wichita, Kansas. Prior to that he was vice president of Industrial Fumigants Co. here.

Mr. Munger has B.S. and M.S. degrees from Kansas State University in the field of entomology.

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RUMINANT NUTRITION

- **Metabolism in the Rumen**
- **Feed Additives in Ruminant Nutrition**
- **Classification of Ruminant Feed Additives**
- **Basic Importance of Ruminant Nutrition**

By Dr. H. E. Bechtel
Dawe's Laboratories, Inc.

Because of its unique gastro-intestinal tract, the ruminant utilizes its rations by a route quite different from the sugar and amino acid absorption route of monogastric animals. In the ruminant, the end-products of stomach changes include short-chain fatty acids and ammonia.

Fatty acids, produced by the rumen microflora, have been estimated to account for 40-75% of all the animal's energy requirements. Upwards of 7 lb. of fatty acids may be produced by the cow's rumen in a single day. The fatty acid proportions may show important variations because of ration differences, but normally run about 65% acetic, 20% propionic, 10% butyric, and small amounts of valeric, etc. Current data show that propionic and butyric acids favor efficiency for growth and fattening purposes, whereas acetic acid contributes to the level of fat in the milk of lactating animals.

Fatty Acids Metabolized

After their formation in the rumen, these fatty acids are metabolized by the rumen papillae and go to the liver via the bloodstream. In the process, the papillae preferentially seem to use butyric over propionic and acetic acids so that much of the butyric produced in the rumen is used up by the tissue in the rumen wall. The liver metabolizes propionic acid and any remaining butyric acid into the glucose pool to provide energy for maintenance, activity, growth and/or fattening.

By contrast, acetic acid for some reason goes through the liver unchanged and is used for the production of milk, or is oxidized indiscriminately by various body tissues to produce mostly non-productive energy in the form of heat increment which must be eliminated from the body as heat. Ruminants are notorious energy wasters, with 50-60% of the metabolized energy (gross energy not lost in gases, feces or urine) of their rations commonly lost as heat increment. Thus, it is not surprising that the feeding of separate fatty acids to cattle showed the following losses of metabolizable energy, in the form of heat increment: 67% for acetic acid ($C_2H_4O_2$), 44% for propionic acid ($C_3H_6O_2$) and 38% for butyric acid ($C_4H_8O_2$).

Fine Grinding, High Energy

Fine-grinding all forage and feeding as meal or pellets in the ruminant ration reduces acetic acid production in the rumen and lowers the fat test in milk from cows so fed. This practice, and the use of rations high in energy and low in fiber, is of wide interest to cattlemen today. Beef and lamb feeders look upon such measures as a way to decrease feed handling costs, obtain more nutrients per dollar spent for feed, reduce heat increment under hot-weather feeding conditions, use less feed per unit of gain in body weight, and lower total costs per unit of weight gain. Dairy farmers are taking a careful look at lower-fiber compressed feeds for similar basic reasons as they enlarge their herds, buy more feed and thus separate dairying from actual crop production, mechanize their facilities, aim for greater feed efficiency per unit of milk production, utilize the cow's limited digestive capacity to better advantage, minimize effects of summer heat stresses and seek ways of handling feeds for faster eating by the cows at milking time.

Avoid Abrupt Shift

Experience is showing, however, that a rather abrupt shift of sheep from low-energy to high-energy rations upsets rumen fermentation and results in a rapid accumulation of lactic acid, a marked increase in rumen acidity, an increase in rumen Gram-positive organisms, and markedly poor performance on the part of the animals themselves. On the other hand, it appears that a gradual shift to higher-energy rations can be made with good weight-gains in sheep, simply because this gives micro-flora capable of using lactic acid sufficient time to multiply and thereby prevent the abrupt drop below pH 4.5 otherwise produced by large accumulations of lactic acid.

Rumenitis, known also as parakeratosis, is being noted in cattle on high-energy feedlot rations especially where the cattle are shifted too rapidly to these rations. The rumen walls of affected animals may become thickened and provide a point of entry for secondary pathogens such as Sperophorus necrophorus which via the portal blood circulation may gain access to the liver and cause so called Liver Abscess Complex. From 4½-14% of the cattle handled recently in several slaughter houses showed symptoms of rumenitis and liver abscesses. Florida cattle fed free-choice on a protein deficient diet recently were reported to have developed "small, dark colored forestomachs almost devoid of papillae" and thereby illustrating the need of providing superior substrates for the rumen micro-flora if top performance is to be secured.

Dr. H. E. Bechtel

AUTHOR—Dr. Bechtel is director of technical service and development for Dawe's Laboratories, Inc., Chicago. For 16 years he was director of feed research for General Mills, Inc. Prior to that he was on the research and teaching staff of Kansas State University. Dr. Bechtel received his bachelor's degree from Pennsylvania State University and his M.S. and Ph.D. degrees from Michigan State University. He is a past chairman of the American Feed Manufacturers Assn. Nutrition Council. The accompanying article is the partial text of a talk presented at the Texas Nutrition Conference.

Ketosis

Low milk-fat tests, rumenitis and liver abscesses, and the disturbed lamb responses reviewed above, are only a few of the many rumen dysfunctions that plague livestock producers. Conditions favoring a greater uptake of acetate and butyrate from the rumen will favor ketone body production, if accompanied by a block in intermediate metabolism. Ketosis is a major U.S. ailment in dairy cattle where its toll is estimated at $10 million annually. Primary ketosis, uncomplicated by cobalt deficiency or infections such as metritis, resembles pregnancy toxemia in sheep. Hypoglycemia usually exists and degenerative changes have been noted in the adrenal cortex and in the anterior pituitary gland. The primary difficulty is reported to be a shortage of feed energy, environmental stress or impaired availability of three-carbon compounds produced from propionic acid or other compounds—leading to impaired use of acetate so that the latter accumulates as ketone bodies.

Bloat may result from impaired rumen functions. Eating nitrates (equivalent to 1 gm. per kg. body weight) in plants or drinking water has been reported as a source of toxic nitrates in the rumen. Lactic acid is normally an intermediate of carbohydrate metabolism in the rumen, but may accumulate in excess amounts and depress the number of cellulolytic bacteria if the ration is high in starch or other readily-fermented carbohydrate—unless the animal is slowly adapted to such a ration.

Urea Use

Excessive ammonia production in the rumen may occur from eating too much urea at one time, from rations high in other sources of readily-fermented nitrogen compounds, and possibly from certain conditions related to hypomagnesemia. Injury from eating high-urea rations is rare.

Current feed control regulations stipulate that urea should supply the equivalent of not more than one-third of the total crude protein in the ruminant ration; actually, this appears to be an ultra-safe limitation. General experience indicates that a maximum of 0.03 lb. of urea can be consumed per 100 lb. of live body weight at one feeding, without injury to the ruminant animal. Above 60 m. moles of ammonia per liter of sheep rumen contents, the liver is unable to remove all ammonia from the portal circulation and may build up to a level that becomes toxic either due to the ammonium ion or to a disturbed acid-base balance.

Complex Changes

In the complex changes that occur in the rumen, fatty acids therefore can arise from a number of different circumstances and be present in normal or abnormal amounts. Ingested fats can undergo lipolytic action in the rumen to produce some fatty acids, though it is conceivable that supplementary fats in the ration might actually hinder micro-flora activity in one way or another. Preformed volatile fatty acids are supplied by silage feeding. Otherwise,

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most of the fatty acids in the rumen come from carbohydrates (including cellulose and starch) and to a lesser degree from amino acid deamination (producing branched chain fatty acids). Cellulases from rumen micro-flora attack cellulose, except to the extent that this is hindered by the physical occurrence of indigestible lignin in forages. Some species of protozoa also digest cellulose in the rumen but in an unessential way. Ethanol reportedly speeds up cellulose digestion by acting as a hydrogen donor and aiding the metabolism of rumen flora through a lowered oxidation-reduction potential.

Starch is a useful microbial substrate, and is easily fermented in the rumen into volatile and non-volatile fatty acids. But, starch-rich rations —aside from their source of energy after depolymerization to glucose in intestinal hydrolysis—may cause real trouble by forming lactic acid too rapidly as explained earlier in connection with the discussion on changing animals gradually to high-starch rations to allow for micro-flora adjustments in the rumen. Certain minimal nitrogen requirements must be met for full use of starch by rumen flora. Glucose feeding resembles starch, and its pH effects in the rumen may be noticeable within 2-4 hours and be accompanied by a lactacidemia; normally, however, degredation of lactates by the rumen flora leads chiefly to propionic and butyric acids.

Micro-Flora Proteins

Nitrogen compounds in normal ruminant rations are reportedly converted largely to ammonia by the rumen micro-flora for incorporation in part in their body proteins. These micro-flora proteins which ultimately are digested by the ruminant host possess good but not outstanding biological value as determined in rat feeding tests. In the case of urea feeding, urease from the micro-flora rapidly breaks urea into ammonia. In the case of protein feeding, proteolytic enzymes from the flora produce peptides and amino acids, which then are converted by deaminases into ammonia. Some of the ammonia goes into the portal blood and quite a bit of urea nitrogen is returned to the rumen in the saliva. There are other complications also, since the make-up of the ration seems to be important and since the fate of the intermediates is by no means clear.

Considerable interdependence exists between carbohydrates and proteins in rumen digestion; for instance, certain branched-chain fatty acids of protein origin are considered essential for rapid cellulose digestion. It is entirely possible that further research will lead to the design of ruminant rations to provide certain key proteins, for instance, along with carefully developed levels of fermentable carbohydrates and other substrate elements so as to spare important proteins and also minimize other wastes in the process.

Suffice it to point out here that metabolism in the rumen is a highly complicated and obviously integrated process with challenging and almost limitless opportunities for further research. Obviously, until more is accomplished in this field, other studies on nutritive requirements for ruminants will of necessity lead only to tentative conclusions because they will need to be reappraised eventually in the light of our newer knowledge of ruminant nutrition.

FEED ADDITIVES IN RUMINANT NUTRITION — With rumen functions and metabolism in mind, it is easy to appreciate the role which many recognized and as yet unrecognized feeding factors may play in obtaining top results with dairy, beef and sheep rations. It is obvious, too, that an understanding of these basic principles insofar as they are known today can have a direct bearing on the success of a given feed and feeding program. Thus, for example, certain otherwise attractive feeds for fattening cattle might fail or succeed depending solely on how the feeds are introduced to the cattle—because of their bearing on the lactic acid picture in the rumen.

Space will not permit a detailed listing of the various additives in common use in ruminant feeds today. Those desiring more information on this score are referred to several useful sources of printed information, such as the following:

(1) National Research Council — Nutrient Requirements of Domestic Animals: Number 3—Dairy Cattle; Number 4—Beef Cattle, and Number 5—Sheep.

(2) Proceedings of state-sponsored feed and nutrition programs.

(3) Feed industry trade journals and magazines.

One further suggestion would be that each person who is sufficiently interested make it a point to keep in close touch with individuals who are in the forefront of ruminant feeding developments. These people will be found on educational and industrial research teams in many parts of the country, and out in the field among those who are in the role of farm advisors as well as those who are farm operators. Today there is less lag than ever before between the discovery of new things and their trial and application in the field. The result is that many applied innovations on the farm front today actually stem in whole or in part from the farm production end through alert teamwork between the farmer and possibly some advisor working with him.

CLASSIFICATION OF RUMINANT FEED ADDITIVES — Many additives are in general use today in livestock production. Others are being introduced as new discoveries are made and the groundwork laid for their commercial application. These additives can be classified conveniently as follows, at the present time:

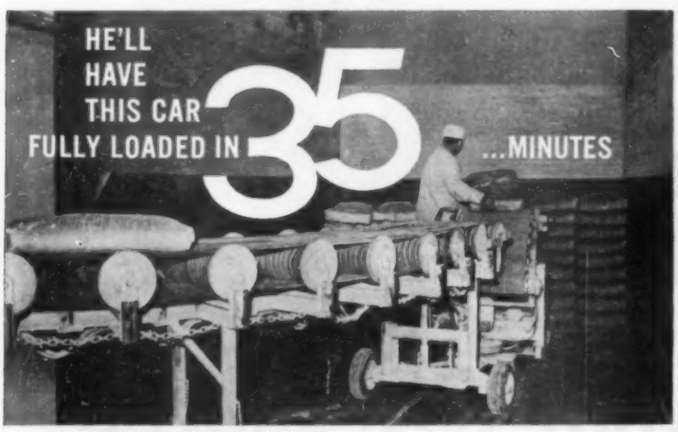
(1) Accepted identified additives.

(2) Accepted unidentified additives.

(3) Interesting new additives.

Those active in formulating ruminant rations are likely to have varying opinions and preferences regarding the classification and use of certain of the individual additives as they are known today.

"ACCEPTED IDENTIFIED" ADDITIVES — Among the "accepted identified" additives, vitamin A has been the subject of considerable work recently. It has been shown that conversion of carotene to vitamin A, transport of vitamin A in the body and storage of vitamin A in the liver are affected by high environmental factors. The indications now are that maximum optimum feeding levels of stabilized vitamin A for ruminants



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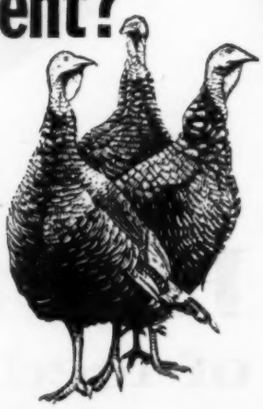

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may be much higher than commonly recommended today, for cattle coming off dried-up range areas, for good gains in the feedlot, and for summertime feeding under hot-weather stress conditions. Recent reports on certain rations suggest that feeding adequate levels of stabilized preformed vitamin A may be especially important because of an impaired ability of the animal to convert carotene to vitamin A in the body.

There are increasing instances where higher vitamin D levels also may be advisable as the trend continues toward lower-calcium rations. This trend toward higher D additive levels also will be more apparent as artificially-cured forage crops find increasing use in the preparation of superior ruminant rations. High levels of vitamin D are also more generally used today than ever before to combat milk fever in dairy cows at the time of parturition.

B Vitamin Supplementation

Efficacy of B-vitamin supplementation, in certain milk substitute rations for calves, has been noted. B-vitamin supplementation under various off-feed and other stress conditions is receiving increasing attention in the field. More and more questions are being raised concerning the adequacy of vitamin-synthesizing and amino acid-synthesizing mechanisms heretofore assumed to be adequate, especially as ever-higher standards of performance are imposed on modern livestock. For the time being, these problems remain unsolved, but they are far too important to be neglected much longer.

Trace minerals as well as bulk were shown by Ohio and Iowa workers to be important in balancing rations for optimum functioning of the ruminant micro-flora. These findings re-emphasize the added complications in ruminant nutrition, stemming from the need to meet the nutritional requirements not only of the host animal but also of the countless micro-organisms in the host animal's stomachs. The role of cobalt, a precursor of vitamin B_{12}, is particularly noteworthy. In some parts of the world, cobalt bullets have proven helpful in meeting the needs for this trace mineral.

Drugs

Among the antibiotics, the tetracyclines have won widespread acceptance in ruminant rations. This is especially true for younger animals where bacterial species have been controlled by limiting harmful species and thus shifting bacterial activities toward more useful functions. Rapid acquisition of bacterial resistance to some antibiotics has been a problem in the prevention and control of certain conditions—such as bloat; recent Iowa work, however, indicates that this problem may be alleviated by using the right combination and/or rotations of antibiotics. In this connection, it should also be noted that potentiation of antibiotic-containing ruminant rations by the use of low-calcium levels and/or proper sequestering agents, may be useful. Field trials point to some benefit from continuous low-level feeding of tetracyclines to dairy cows to combat sub-clinical disease and to stimuate milk production, but the results have been less favorable under good management conditions such as those existing at several of the experiment stations.

Of the hormones, only diethylstilbestrol and one or two combinations of natural steroids, have won widespread acceptance. Future work, particularly with combinations of natural and/or synthetic hormones, can be expected to lead to hormone usages superior to diethylstilbestrol. Although the mode of action is as yet conjectural, available results suggest a direct effect on the anterior pituitary gland, suggesting in turn that it may be possible to speed up otherwise lengthy genetic improvement programs by fortifying ruminant rations with certain substances (such as hormones and enzymes) which may be genetically deficient or lacking because of poorly developed systems for the synthesis of such factors in the animal body. Increasing interest can be expected in hormone additives to rations for the regulation and control of the reproductive cycle. Thus, it is not unlikely that present accepted additives may be supplemented or replaced by likely and badly needed new additives designed to take the fullest possible advantage of unfolding knowledge in ruminology.

"ACCEPTED UNIDENTIFIED" ADDITIVES—Among "accepted unidentified" additives, reference should be made to roughage factors as well as to unidentified factors in such ingredients as distillers solubles and fermentation solubles. Only limited use is made of these factors in concentrated form today, because only limited empirical information has been obtained on them thus far. However, as insurance factors aimed at improving the rumen substrate if at all possible, it is likely that this type of feeding application will expand.

Eventually, as the results of basic research unfold in this field, it is also

(Turn to page 32)

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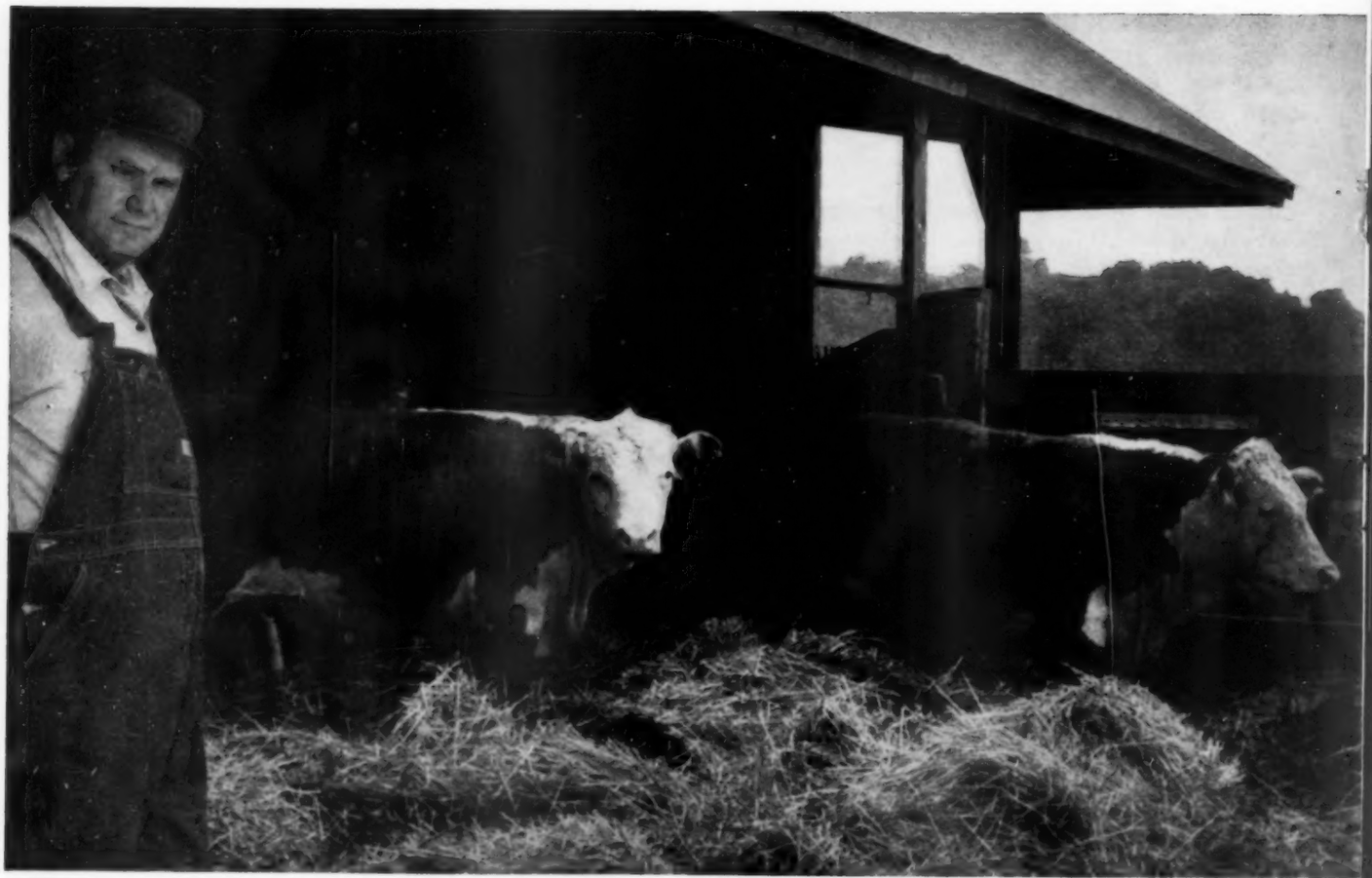

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As a result, many feed manufacturers formulating these stress feeds are discovering a new and profitable source of income.

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Those first two or three weeks following the arrival of cattle are critical. Shipping leads to stress. Unloading and sorting add new stress. Changes in surroundings or in weather—new feeds and feeding methods—add still more stress.

Stress often brings on shipping fever, bacterial diarrhea, foot rot, secondary bacterial infections, subclinical or invisible diseases.

Stop losses for your customers

Stress feeds with AUREOMYCIN help minimize losses from these diseases. Provide your customers with feeds that will give 350 milligrams of AUREOMYCIN per head per day—*to be fed until the critical period is past.* After that, cattle can be continued all the way to market on feeds that provide 70 milligrams of AUREOMYCIN per head per day.

No antibiotic, drug or hormone equals AUREOMYCIN in its activity against disease. Cattle getting AUREOMYCIN *every* day come through the critical period strong and vigorous—go on full feed quickly.

Plan to increase your volume of cattle stress feeds to meet increasing demand. Get in touch with your Cyanamid representative. American Cyanamid Company, Agricultural Division, New York 20, N. Y.

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CYANAMID
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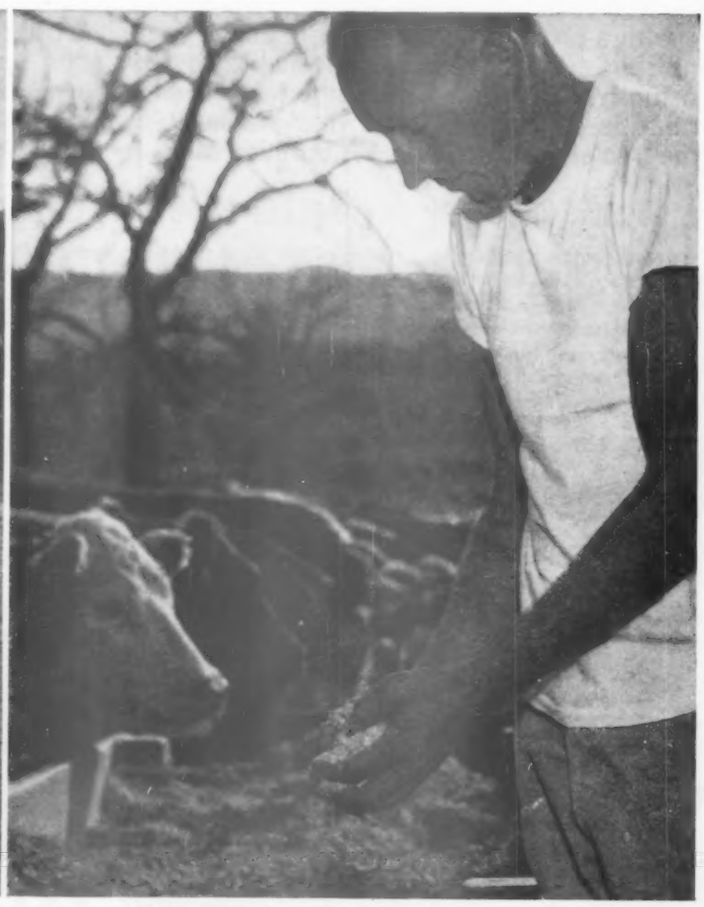
CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

Mr. Maurice Vervaecke, of Omaha, Nebr.: "My herds gain close to 3 pounds per day, shipping fever is a thing of the past, and we've had almost no cases of foot rot. We buy calves in the 500 to 700-pound range and immediately place them on stress feeding of 500 milligrams of AUREOMYCIN per head per day for 20 to 30 days. The longer period means better protection against disease, we find. After the initial period, we drop the additive to 70 milligrams per head per day." Mr. Vervaecke, operator of 3 farms and 2 feedlots, last year sold 6000 head of cattle.



Mr. Henry Brandt, of Council Bluffs, Iowa: "The problems of raising all heifer stock, as we do, include higher incidence of disease. That's why AUREOMYCIN has become so important to us. Every newly-arrived animal (there are 3000 here now) goes on a stress feeding program that provides 500 milligrams of AUREOMYCIN daily for 20 days. Then the daily intake drops to 70 milligrams per head and stays at that until market time. With AUREOMYCIN, we've cut in half our losses to shipping fever and we've virtually eliminated foot rot."

possible that top feeding performance with ruminants will be obtained without roughage of any kind in the ration to keep the rumen flora functioning in a normal healthy manner.

"INTERESTING NEW" ADDITIVES—Among the "interesting new" additives today, several come to mind—of which enzymes may be of greatest immediate interest. Enzymes are complex protein chains of many different types, which catalyze and promote the many chemical reactions which form a basis of life in all body tissues. In fact, it has been said, that genetically "we are what our enzymes are," and recent research shows that natural deficiencies in enzyme systems in the body (such as the deficiency of the sucrose-splitting enzyme mentioned earlier in calves) sharply limit the performance of some rations. This naturally raises the likelihood of value from enzyme-fortifications of certain rations, using those enzymes which may be otherwise deficient.

However, results to date have been extremely variable and undependable, though nonetheless encouraging in specific instances in terms of improved palatability, greater production and superior feed efficiency. Probably, usage conditions vary in important ways that are not yet understood but which enable enzyme additives to perform well under some conditions and not others. The key may be partly a matter of isolating and using the right enzyme for catalyzing a specific reaction under the acid-base conditions existing in the rumen and yet protected from digestive destruction until able to perform their own peculiar catalyzing functions.

Substances designed to enhance or inhibit the activity of the thyroid (the body's metabolic regulator) have been tried from time to time. A synthetic thyroprotein has given modest increases in milk production but withdrawal problems, cost of treatment and added feed requirements, have limited its use. Such compounds may be used more widely as normal metabolic mechanisms are found to be inadequate under modern conditions of higher livestock production demands. Meanwhile, it can be noted that thyroid-depressing substances have generally been unsuccessful as growth stimulants, although a new one (methimazole) has shown some promise over short segments of the fattening period.

Alcohol, as a possible hydrogen donor, has been mentioned, and various alcohol mixtures are being fed currently with varying degrees of success. Chemibiotics such as the quaternary ammonium compounds, and the detergents, have been considered as growth stimulators and bloat preventives, but they have produced variable results even though they probably do affect bacterial activity in the rumen and may also influence digestion and absorption processes in the gastro-intestinal tract.

Amino acid supplementation of ruminant rations apparently has seemed to many people like "carrying coals to Newcastle," but recent Purdue work, for example, has shown improved gains from lysine additions to beef rations. Though the cost of the lysine may be such as to preclude its use for this purpose currently, these results at least indicate the need for a re-look at this entire phase of ruminant nutrition.

Recently, Michigan investigators reported interesting increases in milk production from the use of gluconic acid additive in dairy rations. Some growth improvement may also result from the use of such additives in ruminant rations.

Vitamin E-selenium inter-relationships in the role of muscle health suggest their use as additives under certain conditions. Caution, however, is in order since selenium, like other trace minerals (such as molybdenum and fluorine), is essential in trace amounts but toxic at only slightly higher levels. The natural content of substances, such as selenium and natural hormones in the ration, is of first importance in determining the need and desirability of such additives. This information may be particularly helpful in explaining unexpected poor results on certain types of rations.

Tranquilizers have shown promise in combating shipping stresses. Other applications are in need of further research, although they are being advocated currently as feed additives for fattening cattle.

Various flavoring compounds have been used in the feed industry for many years. Though knowledge to date is limited, palatability factors in the form of flavor additives may well increase in importance as further research is conducted in the physiology and chemistry of taste.

BASIC IMPORTANCE OF RUMINANT NUTRITION—Technical know-how in ruminant nutrition needs to catch up, so to speak, with research in the feeding of other classes of livestock and poultry. There is every reason why this and more can and will be done. Ruminants occupy a place of first importance in American agriculture as the leading sources of cash farm income; latest statistics show that ruminants account for more than a third of the total cash farm receipts in the U.S. Ruminants similarly occupy a top position in the total welfare of our country as converters of rough feeds to food in the only way that much of our land area could be useful. Enough insight has been gained in the field of ruminant nutrition, moreover, to show that a highly fertile field of exploration is waiting to be cultivated. The real need is for sound basic research at the college and experiment station level, to supplement and complement industry's capabilities and activities on the applied level.

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FIELD TRIALS SHOW

Terramycin® Increases Milk Production

BRAND OF OXYTETRACYCLINE

Seventeen trials in six states with 2,370 milking cows have shown a significant increase in milk production from feeding Terramycin at 75 mg. to 110 mg. per cow daily. This increase was equivalent to $6.83 extra return per cow per 186-day period. These trials, conducted under the auspices of the Pfizer Agricultural Research and Development Department, are summarized below.

ADD THIS CLAIM
TO YOUR FEED TAGS:
Increased Milk Production—As an aid in increasing milk production in lactating dairy cows, add recommended levels to furnish 75 mg. of Terramycin per head per day. NOTE: When this product is used as directed, tests conducted on milk from treated animals show no residue of Terramycin.

Introduction

Value of broad-spectrum antibiotics in feeding dairy calves has been well-established by a large number of experiments. Benefits include not only enhancement of growth, but also prevention of scours, improvement of appetite so that milk replacer is consumed earlier and more readily, increased bloom, and better well-being. These advantages are noted in reviews and reports of investigations in both the U.S.A. and in other countries (4, 6, 7, 8, 13, 14, 16, 19).

Feeding of antibiotics to mature ruminants was tested almost as soon as antibiotics became available for the agricultural field. Early trials with beef animals and sheep were somewhat discouraging as they indicated digestive upsets from antibiotic supplementation of the ruminating animal. Further extensive work over the past several years has amply demonstrated that these early results were atypical. It has now become an established procedure to feed Terramycin to beef cattle and sheep with resultant improvements in rate of growth and efficiency of feed conversion.

Influenced by the early adverse findings with meat animals, investigators were at first somewhat reluctant to feed antibiotics to mature dairy cows for fear of an adverse action upon the delicately balanced symbiotic mechanism of the rumen. Nevertheless, a great deal of experimental work has been conducted. Hardie *et al.* (3) and Luther *et al.* (11) demonstrated with mature dairy cows, as well as with calves, that feeding Terramycin caused an initial depression of cellulolytic capacity of the rumen contents. This capacity gradually returned to normal over a period of a few days. Lassiter (9), in an extensive review, summarized studies mainly on chlortetracycline as it affects rumen function and digestive processes of dairy cows, calves and beef animals. Daily quantities fed per animal ranged up to at least one gram. Somewhat variable findings were reported, but in conclusion this author points out that there was no pronounced adverse effect on appetite or well-being of the animals.

In a study with Terramycin conducted in Italy by Socini (20) daily rate of milk output was enhanced by 0.3 lb. per head during a 7-week test period. The antibiotic was fed at a rate of 16.5 mg. per head per day.

Field Studies with Terramycin

There recently has been completed in the U.S.A. a series of 17 field trials of the effect of Terramycin upon milk production. These field trials, comprising one in Florida, 5 in Indiana, 3 in Illinois, 4 in Minnesota, 3 in Pennsylvania, and one in Wisconsin, involved 2370 lactating cows. The herds ranged in size from 25 cows to 7200—the largest being in Florida. Production levels ranged from 200 to 600 lbs. butter fat per cow per year. Management practices included: loose housing with milking parlor, conventional stanchions, and dry lot. Holsteins predominated, but Guernsey, Jersey and mixed herds were present. Feeding and housing factors are summarized in Table I.

How Terramycin was fed—Cows were paired as to date of freshening and were put on trial from 0 to 3 months after freshening. They also were paired with respect to daily milk production so that one member of the pair served as the control and the other received the antibiotic. Average duration of trials was 186 days.

In all trials except with the large herd in Florida, Terramycin was fed daily at a rate of 75 mg. per animal. This level was used because it is the customary feeding level for beef cattle with which there is much antibiotic feeding experience. The antibiotic was in a premix containing 750 mg. per lb. of mix. A small measuring cup was employed which had a level capacity of 0.1 lb. of the premix. Dairymen top-dressed the grain allotment for each cow once daily with 0.1 lb. of premix. This supplemental feeding was given only to treated cows which later were compared to controls in the same barn. The dairymen fed the premix once daily at the same time each day.

With 2,019 cows participating in the Florida trial, it was impossible to take the time to add premix separately to the grain ration. Therefore, premix and grain were mixed at a ratio of 1.5 lb. of TM-10 per ton of grain. These cows, fed grain according to production, received from 75 to 110 mg. of Terramycin daily.

Results of Terramycin Field Trials

Major findings are summarized at right and data of individual trials are shown in Table II.

Milk Production—In one trial there was no difference in milk production between control and treated groups; in three trials the treated were slightly below the controls; in the other 13 trials the treated surpassed controls. For all 17 trials, average daily milk production was 0.87 lb. per cow greater in the treated animals (3% increase). Average daily butter fat production was 0.04 lb. per cow greater in the treated animals, corresponding to the greater milk output and not constituting an increase in butter fat per cent. Statistical treatment showed that the increase in milk production was significant.

Economics—On the basis of the average 186-day trial, the average extra milk production per cow in the treated groups was 161.8 lb. valued at $8.09 ($5 per cwt.). Cost of antibiotic, on a basis of 9¢ per gm., was $1.26 per cow. The extra return per cow was therefore $6.83 above the cost of Terramycin.

It was found that persistency of milk production (ability of a cow to maintain production at a gradually decreasing rate throughout the lactation) was not a factor in the greater output of the Terramycin-fed animals. It was also found that herd size, differences in climate, level of milk production, breed or management did not seem to influence results.

Figure 1 shows the course of milk production in the Florida trial in which there were approximately 1000 cows each in treated and untreated groups. Figure 2 shows the same for one of the more average herds (Indiana No. 1) with 10-11 cows per group.

SUMMARY

TERRAMYCIN IN MILK PRODUCTION
AVERAGE OF 17 TRIALS (186 DAYS)

	Control	Treated
Number of cows	1193	1177
Av. days on experiment[1]	186	186
Av. daily milk prodn./cow, lb.	30.98	31.85
Increase in daily production, lb.	—	0.87
Increase, %	—	3
Extra milk per cow, lb.	—	161.8
Value of extra milk, $	—	8.09
Cost of Terramycin per cow, $	—	1.26
Extra return per cow, $	—	6.83

[1]Range 119-280 days. Milk valued at $5 per cwt. Terramycin 13.95 gm./cow; value $0.09/gm.

TABLE I
FEEDING AND HOUSING FACTORS

Location	Housing	Supplement and Feeding Ratio	Silage
Minnesota 1	Conventional	Oats & Corn + 36% Suppl.	Corn or Grass, 35 lb./day
Minnesota 2	Loose Housing	16% 1:4*	Corn–free choice
Minnesota 3	Conventional	16% 1:3.5	Grass-Oats-Corn
Minnesota 4	Conventional	14% 1:4	Corn–40 lb./day
Pennsylvania 1	Conventional	16% 1:3.5	Corn and Grass, 35-40 lb./day
Pennsylvania 2	Conventional	15% 1:3	Corn–25 lb./day
Pennsylvania 3	Conventional & Loose Housing	14% 1:3.5	Corn and Grass, 30 lb./day
Illinois 1	Loose Housing	15% 1:4	Corn–35 lb./day
Illinois 2	Loose Housing	15% 1:4	Corn–35 lb./day
Illinois 3	Loose Housing	15% 1:4	Corn–35 lb./day
Indiana 1	Conventional	16% 1:4	Corn–45 lb./day
Indiana 2	Conventional	16% 1:3	Grass and Corn, 40 lb./day
Indiana 3	Conventional	14% 1:3	Corn–30 lb./day
Indiana 4	Conventional	14% 1:3.5	Grass and Corn, 35 lb./day
Indiana 5	Conventional	15% 1:4	Grass and Corn, 30 lb./day
Wisconsin 1	Conventional	Oats & Corn + 36% Suppl.	Corn or Grass, 35 lb./day
Florida 1	Dry Lot	16% 1:3	Citrus Pulp Roughage Mix–20-30 lb./day

*Ratios are lb. grain per lb. milk

TABLE II
MILK PRODUCTION DATA–INDIVIDUAL TRIALS

Location	Length of Trial, days	Breed	Treatment	TM mg/Cow daily	Milk/Cow/Day lb.	Fat/Cow/Day lb.	Initial Milk Prdn., lb. daily	No. Expti. Cows	Total Milkers in Herd
Minnesota 1	182	Holstein	Control	0	32.4	–	32.6	8	40
			TM	75	32.3	–	32.2	8	
Minnesota 2	175	Guernsey	Control	0	28.1	1.40	37.5	10	60
			TM	75	28.5	1.45	37.5	10	
Minnesota 3	273	Holstein	Control	0	41.6	–	30.9	10	65
			TM	75	41.6	–	29.7	10	
Minnesota 4	119	Holstein	Control	0	38.4	1.34	43.4	13	60
			TM	75	39.3	1.37	43.4	13	
Pennsylvania 1	180	Holstein	Control	0	33.4	1.20	36.8	13	55
			TM	75	34.3	1.22	36.8	13	
Pennsylvania 2	180	Guernsey	Control	0	27.8	1.32	32.6	14	70
			TM	75	28.5	1.36	31.6	13	
Pennsylvania 3	195	Guernsey	Control	0	26.4	1.33	37.3	14	250
			TM	75	27.7	1.37	36.7	14	
Illinois 1	133	Holstein	Control	0	17.9	0.73	28.7	11	35
			TM	75	19.6	0.76	29.2	12	
Illinois 2	154	Holstein	Control	0	30.4	1.12	35.1	12	35
			TM	75	29.7	1.13	36.3	13	
Illinois 3	180	Holstein	Control	0	30.0	1.08	35.0	10	35
			TM	75	32.6	1.21	34.8	10	
Indiana 1	180	Holstein	Control	0	38.8	1.23	46.6	11	30
			TM	75	40.1	1.35	46.9	10	
Indiana 2	280	Holstein	Control	0	42.1	1.65	45.1	10	150
			TM	75	43.2	1.73	44.0	10	
Indiana 3	157	Jersey	Control	0	17.4	0.85	21.7	8	40
			TM	75	17.3	0.83	21.4	8	
Indiana 4	180	Holstein	Control	0	25.0	0.80	40.4	14	75
			TM	75	25.6	0.82	40.4	13	
Indiana 5	240	Holstein	Control	0	33.2	1.30	42.5	9	25
			TM	75	36.3	1.29	43.0	9	
Wisconsin 1	140	Holstein	Control	0	40.8	1.57	42.1	9	36
			TM	75	41.5	1.59	42.0	9	
Florida 1	210	Mixed	Control	0	22.8	0.92	24.9	1017	7200
			TM	75-110	23.3	0.94	24.0	1002	
Average	186	Total 17		Control	30.98	1.19	Control	1193	
				TM	31.85	1.23	TM	1177	
				Difference	0.87	0.04	Total	2370	

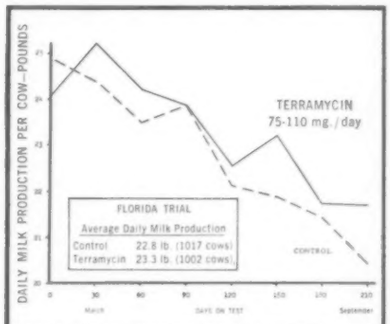

Figure 1. Milk production of control and Terramycin-fed cows in a trial with approximately 1000 cows per group (Florida).

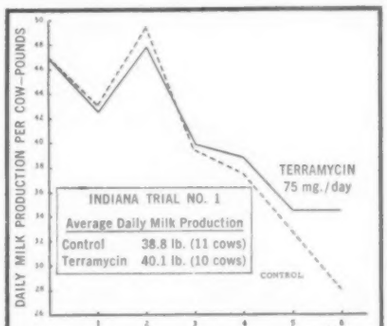

Figure 2. Milk production of control and Terramycin-fed groups in a trial with 10-11 cows per group (Indiana No. 1).

Health of Animals–Possible health benefits were evaluated to the extent of recording incidence of mastitis and of footrot. Footrot was not a problem in any herd during the tests. In six of the 17 herds there appeared to be less mastitis in the Terramycin-fed animals. No adverse effect of antibiotic feeding upon digestive processes was noted as would be anticipated from earlier studies (3, 11).

Bacterial Counts–There was considered a possibility that cows fed Terramycin over an extended period of time would yield milk with a lower bacterial count. At random, four herds were sampled after being on trial for 90 days. Plate counts were made on raw milk of all four and on the pasteurized milk of three of the four.

Terramycin feeding did not decrease the bacterial count in this one sampling of milk from 97 cows.

Tests for Antibiotic in Milk–At the low level of feeding in these trials it was scarcely to be expected that Terramycin would appear in milk. Nevertheless, samples were taken for assay from two of the trial herds. No antibiotic was found in the milk and cheese cultures were not inhibited by this milk (15).

CONCLUSIONS

Seventeen field trials were conducted in six states with 2370 lactating cows. Cows were paired as to dates of freshening and average daily milk production so that one member of each pair was a control and the other member was fed Terramycin at a daily rate of from 75 to 110 mg. Average duration of trials was 186 days. Terramycin-fed cows averaged 0.87 lb. more milk per head daily, a difference found to be statistically significant. This added production is equivalent to $6.83 extra return per cow per 186-day period above the cost of antibiotic. There was no effect of Terramycin feeding upon bacterial content of milk, the antibiotic did not appear in the assayed milk, and cheese cultures were not inhibited by this milk.

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TABLE 1. Average Livability and Hen-Day Rate-of-Lay for the Past Four Trials

	Eleventh test	Tenth test	Ninth test	Eighth test
Livability, 19-79 weeks—				
Floor, %	92.8	89.4	92.0	87.2
Cages, %	90.5	90.0	88.8	90.0
Hen-day production—				
Floor	278	275	271	266
Cages	254	240	258	242

Mortality Down, Production Up in Egg Test

MODESTO, CAL.—The downward trend in mortality and the upward trend in egg production in the 11th California Official Random Sample Egg Laying Test appeared to result from a strengthening of the genetic constitution of the bird, the test final report stated.

It was also theorized that refinement in the management practices at the test project contributed to these advances.

Floor birds in this test passed up the cage birds in livability, moving up from 89.4% in the 10th laying test to 92.8% while the cage birds registered a modest advance from 90% to 90.5%. Floor birds continued to outproduce the cage birds with a hen-day production of 278 vs. 254. However, the cage birds showed a greater increase from their record in the 10th test. They improved production from 240 to 254 while the floor birds production rose from 275 to 278.

The report indicated that the floor birds have outproduced the birds in cages in each of the four tests since cages were installed at the Modesto project. The report states that it is not the intent of the California Poultry Improvement Commission to compare the two types of management, but that the variation is interesting.

Interaction

The report pointed out that "while significant differences appear among entries within type of management with possible significant variation between housing within entries, preliminary calculations have suggested that there may be no strain-treatment interaction. If this is borne out with further analyses, it would follow that if a strain does well in one type of housing, it tends to do well under other housing conditions."

Over the four-year comparison period, the following variations have appeared:

(1) Sexual maturity comes at a slightly earlier age.

(2) Laying hens have become a trifle smaller.

(3) Egg size has increased.

(4) Shell thickness has declined to a small extent.

(5) Incidence of blood spots has remained constant.

(6) Albumen quality expressed as Haugh units has remained unchanged.

(7) Cage birds mature a few days earlier than floor birds.

(8) Cage birds are heavier at end of lay than floor birds.

(9) The incidence of blood spots in eggs laid by cage hens is 50% greater than for floor birds.

(10) Shell thickness tends to be slightly greater in eggs laid by cage hens.

(11) Cage birds and floor birds lay eggs with equal albumen quality.

California Egg Co-op Suggested in Survey

WASHINGTON—Two alternatives which might obtain "substantial, positive market influence" for egg producers in the Los Angeles area have been suggested by the U.S. Department of Agriculture in a survey report.

These alternatives, as outlined in the report by Norris T. Pritchard, USDA economist, are: A new statewide egg marketing cooperative with a large branch in the Los Angeles market or "substantial expansion" of the Poultrymen's Cooperative Assn.

The report says that present bargaining associations "have served both producers and the entire Los Angeles egg market in most useful ways in the past, but changing conditions in the market raise doubts regarding their future effectiveness."

The recent study, like a 1954-57 survey which preceded it, was undertaken by USDA "because of persistent dissatisfaction of producers, distributors and retailers with pricing and other marketing practices."

USDA reports that the Los Angeles market is supplied by about 2,000 nearby "egg ranches," and most of the eggs are distributed through supermarkets.

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*While some growers use other coccidiostats with CocciVac, Trithiadol is recommended because of its proved efficiency with the CocciVac program.

CocciVac is the registered trademark of Dorn and Mitchell Laboratories, Inc.

Factors Affecting Micro-Ingredient Distribution In Feed Materials

By W. H. Hastings, A. M. Feyerherm and LaRue Kabance*

Departments of Flour and Feed Milling
Industries and Statistical Laboratory
Kansas State University, Manhattan, Kansas

ABSTRACT—Dyed particles of various feed materials and of various sizes added at 0.25% to a uniform carrier, with standardized mixing and sampling, were recovered by particle count or sieving. Non-random mixing was evident when particle size of the additive was considerably less than the carrier and when extremes in density were present. Partial replacement of carrier with material of smaller size or the addition of 1% vegetable oil to carrier, retarded segregation of small size additives.

* * *

A major quality control study in the manufacture of formula feeds is the distribution of vitamins, trace minerals, drugs and stimulants. Contributing 75% of the number of ingredients and 5% of the weight of a ration, at significant cost, these microingredients are useful only when they are adequately mixed.

In theory, chance effects of gravity and/or mechanical action during mixing allow the distribution of microingredients to reach an equilibrium at which randomness is at a more or less stable maximum (6) (7). However, in practice, many factors may cause particles to segregate or avoid a random arrangement—friction, density, shape, size or electrostatic charge. Segregation may also occur when particles are caught or are mechanically restricted in certain areas of a mixer or other milling equipment.

Particle segregation was attributed by Brown (3) to differences in the phyiscal properties of materials and the shape and surface characteristics of the mixer. He suggested that particle size is more important than other factors in causing segregation. Quillen (8) stated that the improvement in mixing of solids made by decreasing particle size can be measured quantitatively by statistical methods. In many cases a decrease in particle size is necessary to attain sufficient particles of a given weight of additive for dispersion in each essential portion of feed. A formula has been proposed by Bloom and Livesey (2) for arriving at the particle size necessary to allow a theoretical number of microingredient particles, within certain control limits, to be present in a unit weight of a mixture.

Disadvantages sometimes occur when a small level of additive is divided into the size of particles necessary for adequate distribution in the amount of mixture required daily by a baby chick. Certain ingredients are unstable in finely milled form and are likely to acquire electrostatic charges (10). Danckwerts (4) reported that not only electrostatic charges, roughness and stickiness become important factors in segregating small particles, but that the mixing time to achieve good distribution increases with small particles.

Several systems of mixing by tumbling, stirring, smearing and impact actions were reviewed by Gray (5) with the conclusion that (a) the rate of mixing depends on physical properties of the material as well as the type of equipment used, and (b) differences in performance of mixing equipment are reduced when the solids mixed have nearly the same particle size and density.

Most of the work reported on distribution of dry solid particles has been done with sand, coal, glass, plastic or other material or reproducible physical nature. The present study was undertaken using feed materials with extremes in physical properties as encountered in formulation. An attempt was made to standardize the mix procedure as suggested by Weidenbaum (9). The sampling procedure was another problem. Preliminary observations of samples removed from the mixer by probe (several were machine made for the purpose) revealed that the concentration of tracers differed widely, with no evidence of reproducibility. The probe was observed to push aside particles, disturbing the status quo and allowing segregation to occur as material filled the probe reservoir. It was concluded that distribution of tracers in undisturbed areas of a mixer could best be determined by withdrawing samples from a discharge point and making the added action of gravity flow a necessary part of the mixing operation. This conclusion was also reached by Adams and Baker (1). They detected trends in sample composition when the number of tracer particles per sample was plotted

*LaRue Kabance is now with Hales and Hunter Co., Riverdale, Ill.

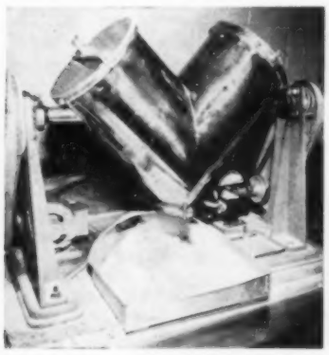

FIGURE 1. Twin-Cone, V-Type Stainless Steel Mixer

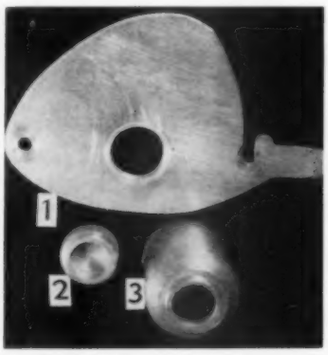

FIGURE 2. Enlarged Outlet Plate (1) with Sampling Cups (2) and (3)

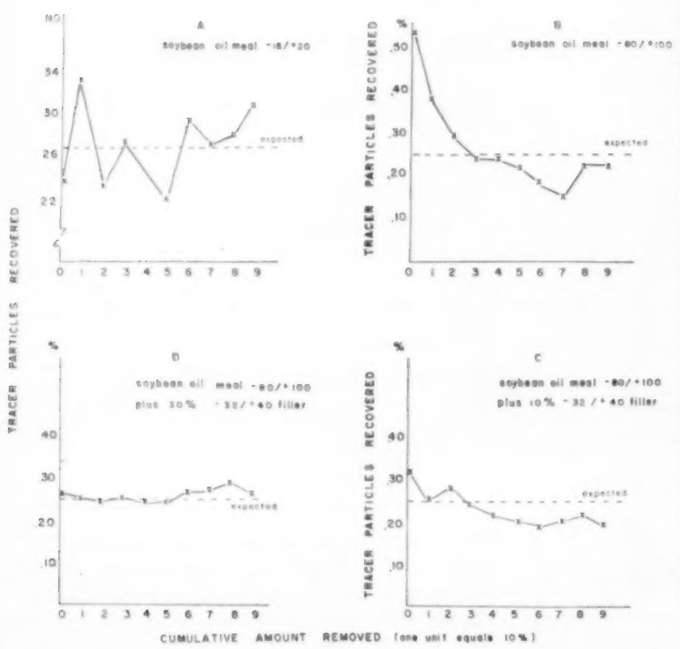

FIGURE 3. Recovery of soybean meal tracer. A, similar in size to carrier; B, smaller in size (—80/+100) than carrier; C, smaller in size (—80/+100) than carrier with 10% standard carrier replaced with intermediate size (—32/+40) carrier, and D, smaller in size (—80/+100) than carrier with 30% standard carrier replaced with intermediate size (—32/+40) carrier.

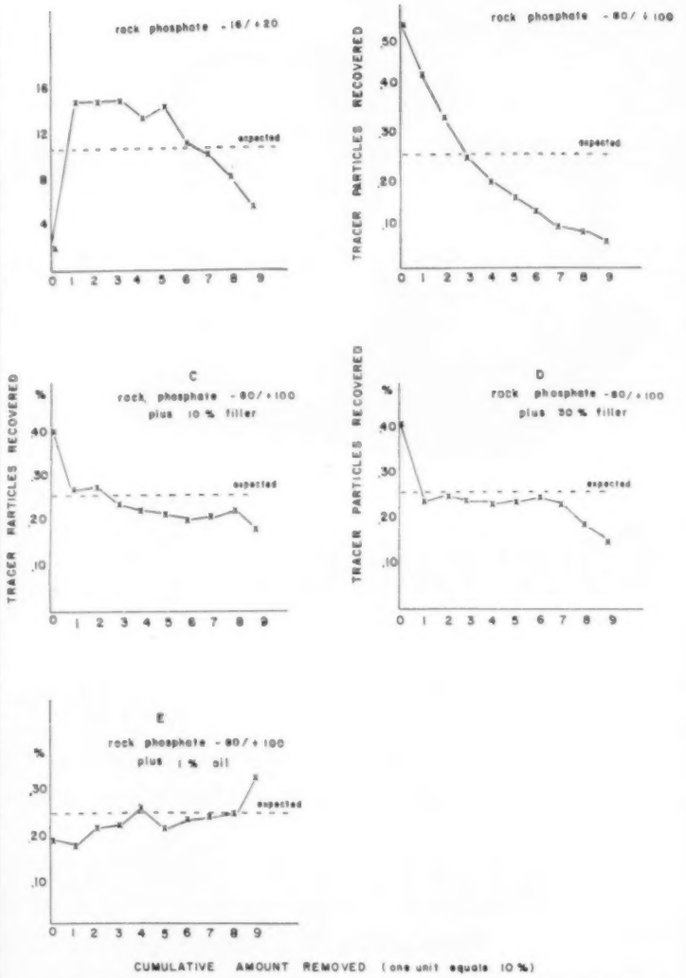

FIGURE 4. Recovery of rock phosphate tracer. A, similar in size to carrier; B, smaller in size (—80/+100) than carrier; C, smaller in size (—80/+100) than carrier with 10% standard carrier replaced with (—32/+40) size carrier; D, smaller in size (—80/+100) than carrier with 30% standard carrier replaced with (—32/+40) size carrier, and E, smaller in size (—80/+100) than carrier with 1% vegetable oil added to carrier.

TABLE 1. Physical Properties of Tracers of Same Particle Size (—16/+20) as Standard Carrier

Tracers	Beet pulp	Soybean oil meal	Di-Calcium phosphate	Gr. rock phosphate
Density (gr./cc)	1.43	1.41	2.33	3.00
Bulk density (lb./ft.³)	15.52	36.80	41.40	77.04
Particles/gm.	2200	2290	1620	940
Angle of repose	40.0	25	30.2	31.3
Particle shape	long-spiral	elongated	spherical	spherical

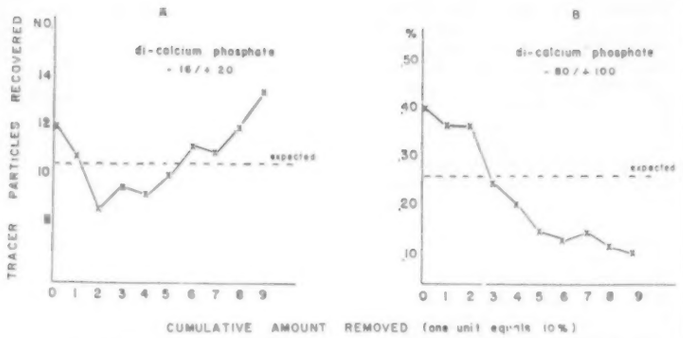

FIGURE 5. Recovery of di-calcium phosphate tracer. A, similar in size to carrier B; B, smaller in size (—80/+100) than carrier A.

against the position occupied by the sample in the sampling sequence. A conclusion was that samples must be taken from the point of discharge to properly ascertain the performance of a mixer.

EXPERIMENTAL—A simple commercial mixer which includes the actions of diffusion, shearing and convection by gravity action only is found in the V-type mixer. The mixer used was a stainless steel, twin-cone "V" type (Figure 1) with a working capacity rating of eight quarts, equipped for variable speed rotation. The outlet at the apex of the "V" was covered by a plate, hinged to slide away from a pivot position to allow emptying by gravity. Covers on each cone could be removed for loading or probe sampling. A discharge plate was machined to hold a threaded sample cup and enlarged to leave sufficient plate surface to close the discharge opening when the cup was removed for sample analysis. Two aluminum sample cups were tooled having approximate capacities of 2.5 and 32 grams, respectively (Figure 2).

Solvent processed soybean oil meal was used as a carrier of microingredients studied because (1) it is commonly used to dilute or carry feed additives, (2) it is included in most formula feeds as a protein source, and (3) its particles can be obtained in fairly uniform shape and size by sieving.

After considerable experimental work with varying quantities of carrier and tracer, and with varying mixing speeds and mixing times, standard conditions were established for each experimental run.

These were: (1) a fixed quantity of 1000 grams total material containing .25% tracer; (2) 100 rotations of the mixer at 19 revolutions per minute. Mixing was done with the discharge plate in a closed position.

For runs in which the tracer particles could be easily seen, as was the case when the tracer and carrier particles were the same or nearly the same size, (1) the smaller cup was used for sampling the mixture; (2) a count was made of the number of tracer particles in a sample to determine the variation in tracer material from sample to sample as a function of the amount removed.

For the other runs in which the tracer particles were smaller than the carrier particles, the tracer particles in each sample were separated from the carrier and weighed. When this procedure was used (1) the larger cup was used for sampling; (2) measurement of the amount of tracer material was expressed as a percentage of the total weight of the mixture in the sample.

Physical properties of the tracers are shown in Table 1. Particles of the desired size were prepared after sieving by spreading the material on paper and spraying with crystal violet dye solution in acetone, then drying and resieving.

RESULTS AND DISCUSSION—Repeated runs were made for each mixture, to obtain a measure of the experimental error and apply statistical procedures. The graphs shown in Figures 3-6 show the mean number of tracer particles (or mean percentage by weight) for the given number of runs plotted against the cumulative amount of material removed from the mixer at the time of sampling. Observations were made on 10 samples from each run and the observed samples were selected at approximately equal intervals on the basis of the cumulative amount of material removed from the mixer.

Distribution of Soybean Oil Meal—Figure 3-A shows the distribution of soybean oil meal as a tracer of the same particle size (−16/+20) and density as the carrier. Evidence for non-random mixing was lacking according to the criterion developed for statistical evaluation. Recovery of tracer particles smaller (−80/+100) than carrier particles is shown by Figure 3-B, as a definite pattern of segregation during the mixing and discharge processes.

The observance of small tracer particles as they sifted through the carrier and concentrated in the first few samples withdrawn, prompted the partial replacement of carrier with intermediate-size particles of the same material. Figure 3-C shows a moderate segregation pattern, characterized as non-random, when 10% of the standard carrier was replaced by smaller particles. When 30% of the standard carrier was replaced with smaller particles, $P > 0.05$ and the samples could be considered as coming from a random mixture.

Distribution of Ground Rock Phosphate—Material twice the density of soybean oil meal is often found in in-

(Turn to FACTORS, page 66)

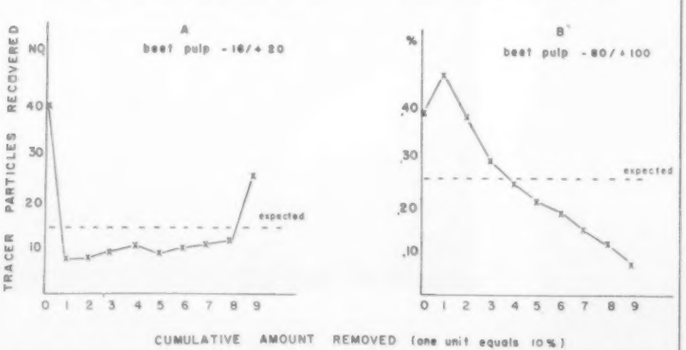

FIGURE 6. Recovery of beet pulp tracer. A, similar in size to carrier; B, smaller in size (—80/+100) than carrier.

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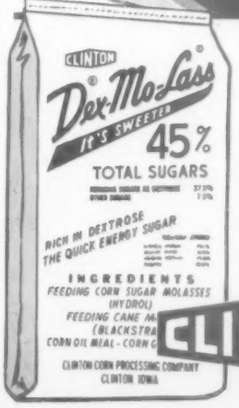

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DOUBLY-USEFUL—highly nutritious in rations for all farm animals; scientifically formulated to preserve the quality of silage.

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Purina Views Marketing Trends And Designs Plans for Sixties

ST. LOUIS—What are the marketing plans of a large, national feed manufacturing concern whose executive leadership believes the year ahead "will be a year of great industry growth" and is aware of "basic trends shaping up in animal agriculture and the feed industry today?"

Some answers to that question can be found in the November-December issue of Checkergraph, a dealer publication of the Ralston Purina Co., St. Louis. Most of the issue was devoted to digests of executive messages heard by Purina dealers and salesmen at Purina regional conventions.

"Adding all of the facts together," said Ray Rowland, Purina's president, "our forecasting department is highly optimistic about the feed industry's prospects for a year of growth in 1960-61. In fact, there are more things in our favor this fall than there were dangers signs a year ago.

"If there was ever a time to make sound, ambitious aggressive plans, it is today. We are confident that the feed industry is going to grow at the rate of at least 1½ to 2 million tons in the year ahead. It may grow faster than that."

One statement by Mr. Rowland tells, in a nutshell, how Purina plans to grow in the next decade: "We are both diversifying and specializing. By that I mean we are specializing in the field of feed manufacturing, but we are diversifying within that specialized field."

He mentioned that the company has six major departments, of which manufacturing and distribution of feed is by far the largest. But each of the others is closely related to feed manufacturing, Mr. Rowland said. The other divisions are the Ralston division, which makes cereals, Ry-Krisp and Dog Chow; grain trading; soybeans; sanitation and farm supply, and international.

Industry Trends

It was Jack Streetman, Purina vice president and director of marketing, who talked about trends "we hear so much about"—larger and fewer farms and feeders; integration; direct selling; end product marketing; buying business; larger, fewer and stronger manufacturers, and stronger, customer-oriented dealers.

". . . There are basic trends shaping up in animal agriculture and the feed industry today that could change the way we market our products . . . trends which beckon us down side roads and blind alleys," said Mr. Streetman. "But the great need of all of us at levels of operation in our company and dealer organization is to keep our perspective."

Comments on the effects the various trends will have on the feed industry and Purina plans were included in Mr. Streetman's presentation.

A few selected remarks from his talk tell what one feed manufacturer thinks about these trends:

● American agriculture is an expanding industry in every respect except one—the number of people required to run our farms. . . . The man who needs our products and services is not going out of business—he's going into a bigger business!

● "We have no desire to get into the hatchery, breeding or processing business on a large scale in direct competition with our own customers. . . . While our company does not plan to integrate, we must recognize that many of our dealers have had no other choice.

● ". . . Larger independent feeding units encourage the trend to direct selling where the dealer fails to grow with his customers. . . . We have resisted that trend because we believe our dealers in these areas (of independent feeders) have the courage, the vision and capacity to sell and serve larger customers.

● "Buying business is exemplified by loose credit, reckless bookings, free bulk facilities, guaranteed profits, no interest and company-owned distribution.

● ". . . It is wise for the feed dealer to tie closely to a strong manufacturer—a leader in the industry.

● "The dealer who grows in the decade ahead will put his customer and his needs at the center of his business building programs. . . . The customer is going to be the boss in the Sixties."

Comments Excerpted

Excerpts from Mr. Streetman's dealer convention talk as presented in Purina's publication follow:

THE TREND TO LARGER AND FEWER FARMS AND FEEDERS—A lot of what we read and hear might lead you to believe agriculture is a declining industry—in pretty bad shape. Nothing could be further from the truth.

American agriculture is an expanding industry in every respect except one . . . the number of people required to run our farms has decreased one third in the last two decades. But each year our farms use more capital.

Farm assets have grown from $53 billion in 1940 to $203 billion today. They've almost quadrupled in 20 years! As management has become a key factor in the successful operation of a farm, the farmer of today has

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HOW SHOULD YOU EVALUATE THE COST OF A GROWTH STIMULANT: BY INITIAL COST, OR BY RESULTS?

When a growth stimulant increases weight in *marketable* birds so that the improvement is worth many times the initial cost of the growth stimulant, it's obviously a good investment. And when that same growth stimulant additionally produces a significant increase in feed conversion efficiency, then it's an even better investment! GALLIMYCIN-10 is just such a growth stimulant!

Increases profits in 3 ways

The low-level effectiveness of GALLIMYCIN-10 ... greater marketable weight produced ... plus savings in feed ... all add up to bigger profits. Increased profits from feeds supplemented with GALLIMYCIN-10 have ranged from $29 to $46 per 1,000 birds ... added profits *above* feed and feed additive costs!

6011570

become a better business man. He operates a bigger farm than a few years ago.

We read and hear a lot about the disappearance of the family farm. This is just so much hogwash. The family farm is not disappearing. It's getting larger—adopting new methods—new technology. Thirty years ago, 96% of our farms were family operated. Today, 30 years later, 96% of our farms are still family operated.

The thing to remember is that the man who needs our products and services is not going out of business—he's going into a bigger business! He needs our services more than ever before. But to sell him, we must be able to put together a business-like presentation. We must be able to talk to him with technical competence about his capital needs, return on his investment, cash flow, to analyze his production costs and his operating statement, and all other facets of his business. The feed dealer who can provide the service this larger feeder will need, will earn and hold his business.

THE TREND TO INTEGRATION IN SOME AREAS—Let's review the principal segments of the production chain and the functions performed by each. The oldest and most common service the Purina dealer performs is to make available to his feeders the products, programs and services needed to feed livestock and poultry at a profit.

The dealer can go one step further and not only provide services such as delivery, warehousing, credit, etc., he can also furnish the capital and assume the risk of the feeder. Then the dealer becomes a contracting dealer.

Going one step further, the dealer may assume not only the risk, but also the ownership of the livestock or poultry as well as the facilities. The basic difference is—the man in overalls who feeds the birds or animals has exchanged his right of ownership and risk of production for the security of a guaranteed labor income. Our customer, the dealer, is using rather than selling Purina Chows.

But the important thing is, he is performing his own dealer services as a basis for the margin he takes, and we believe that is fundamental in the chain of distribution. Some of our competitors have eliminated their dealer organization either by abandonment or by extending them too much credit and taking them over. These manufacturers are deliberately looking for opportunities to put large sums into owning the land, buildings, equipment and facilitites to become their own best customer for their products, and in direct competition with their customers.

Contracting

From time to time, we are faced with proposals to take over the risk and the profit from the growing segment of the industry by large scale direct contracting with the grower in the production of broilers, hogs, eggs and turkeys.

We have no desire to get into the hatchery, breeding or processing business on a large scale in direct competititon with our own customers. We prefer to continue to concentrate our efforts in the manufacturing link of the production chain without becoming further involved in the production segment—not because we are afraid of the financial soundness of those segments, but because we have our hands full in doing the research, the buying, the quality control, the testing of new ingredients, efficient manufacturing and keeping pace in a fast moving industry.

While our company does not plan to integrate, we must recognize that many of our dealers have had no other choice. And many of our dealers have used this avenue for growth. In fact, in many areas, for example parts of the South, where business has had to be created to meet the local needs for meat and eggs as well as extra farm income, failure to tie up this business through contractual arrangements of some sort has simply opened the door for competition to walk in and take over the independent growers.

In these highly specialized areas, we not only approve of integrated operations for a dealer, but we believe it may be his only hope of survival.

As many of our good dealers have expanded their broiler or layer operations, they have found it wise and necessary to own or control the hatchery and the breeder flocks to get a constant supply of quality chicks. And in some cases—the processing business to provide a satisfactory market.

THE TREND TO DIRECT SELLING—The trend to direct selling in the areas of independent feeders is one which can easily get out of proper perspective. I'm not talking about integrated poultry operations now. I'm speaking of the hog, cattle, dairy and sheep farmer on our grain and livestock farms. These larger independent feeding units encourage the trend to direct selling where the dealer fails to grow with his customers. Many of our competitors have bypassed, scuttled and abandoned their dealer organizations in a frantic and desperate effort to buy this business.

We have resisted that trend because we believe our dealers in these areas have the courage, the vision

GALLIMYCIN has been proven better

In scientific studies at agricultural colleges and experiment stations, and in tests conducted at Abbott's Research Farm, GALLIMYCIN, used at a level of 5 grams per ton of feed, consistently produced better results.

Growth improvement in flocks fed GALLIMYCIN, based on an average of field trial results, was 5.8%. Yet, it takes *less than 1% improvement in growth to pay for GALLIMYCIN at the recommended level!* GALLIMYCIN-10 increased feed efficiency at the same time, producing greater net gains per pound of feed. In one trial, feed efficiency was 7.4% higher in the flock receiving GALLIMYCIN than in the control flock receiving no growth stimulant.

A 9-week floor pen test at the University of Arkansas, in which GALLIMYCIN was added to feed at a level of 5 grams per ton, produced these results: 190 lb. extra weight per 1,000 birds on 51.4 lb. less feed! These are impressive figures just as they stand, yet the dollar equivalent is even more impressive. Using a broiler market price of 18¢ and a feed cost of 4¢ per pound (exclusive of antibiotic cost), GALLIMYCIN produced $35.45 *extra profit* per 1,000 birds!

In another trial involving 5,300 birds, the average weight of GALLIMYCIN-fed birds at 9 weeks-six days of age was 4.12 lb. Feed conversion in the same test was 2.23.

GALLIMYCIN has been compared with the "older" antibiotics in numerous field trials and has consistently produced better growth responses from less feed. In Utah, the effect of GALLIMYCIN on growth promotion was studied in comparison with five other antibiotics. In these studies, GALLIMYCIN produced greater average weight and better feed conversion efficiency than any of the other antibiotics tested.

GALLIMYCIN-10 has been field tested in every major broiler area in the country. It is effective as a low-level growth stimulant (under practical growing conditions)... stimulating growth at a higher rate of feed efficiency. GALLIMYCIN-10 can be fed continuously, right up to the day of marketing; no withdrawal period is necessary. It's supplied in a free-flowing premix with a soy bean oil meal carrier, manufactured under rigid standards of Abbott quality control. And, GALLIMYCIN-10 carries a 24-month expiration date! GALLIMYCIN-10 is safe... proven; there are no special registration requirements.

It's not what it costs but what it pays that counts!

The higher initial cost of GALLIMYCIN becomes minor when measured against increased weight in marketable birds, plus savings in feed ...for the true cost of an antibiotic feed supplement depends on the results it produces.

Yes, you'll make more dollars with GALLIMYCIN-10 in your broiler feeds. Ask your Abbott man for complete details on what GALLIMYCIN feeding programs can pay you!

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and capacity to sell and serve larger customers.

Through our dealer development program, we are providing our dealers training in dealer business management, and training for their employees to help them prepare themselves for the challenge ahead. Purina's decision to champion the local dealer was made and will continue to be followed in the firm belief that the Decade of the Sixties can be a Decade of Profitable Growth for Purina and its dealer organization if we join forces and render service to justify our place in the chain of distribution.

THE TREND TO MARKETING THE END PRODUCT—Our company has been urged to enter the field of marketing broilers and eggs. And there is no question about it, if the egg marketer is a feed supplier, he wields a powerful influence—and oftentimes complete control—over where the flock owner buys his feed. Egg marketing therefore, in the minds of many people, is a panacea for the sale of our Purina Laying Chows.

The question is often asked about Purina's long-range marketing plans. First of all, Purina has built its national reputation in the field of nutrition research, manufacturing and distribution. We realize that egg marketing is a highly specialized business. The egg marketer must not only have highly developed skills in procurement, processing, merchandising and distribution, but to compete, he must buy eggs as low as possible and sell them as high as possible, which at times is not palatable to the producer. So this makes it difficult—if not impossible—to buy from and sell to the same customer. All feed manufacturers engaged in egg marketing is a highly specialized business. The egg marketer must not only have highly developed skills in procurement, processing, merchandising and distribution, but to compete, he must buy eggs as low as possible and sell them as high as possible, which at times is not palatable to the producer. So this makes it difficult—if not impossible—to buy from and sell to the same customer. All feed manufacturers engaged in egg marketing subsidize from their manufacturer's profit. Many of them have lost money.

So we encourage our dealers to keep their operating dollars invested in the production phase of the poultry and egg business. We intend to leave the marketing fields to professionals. We know the professionals are attracted to sources that can provide a quality egg in a dependable volume. We know that the keys to successful egg marketing are quality and quantity. When we learn to produce a top quality egg, we are three fourths of the way toward solving our egg marketing problems. A number of Purina dealers have themselves become professionals in egg marketing because they control both quantity and quality.

THE TREND TO ADVERTISING THE END PRODUCT—Some people are predicting that the same powerful advertising and merchandising methods used to move mountains of soap, soup and cereal, can be used to sell branded eggs, broilers . . . perhaps beef or pork.

Very little adevrtising has been done to sell eggs to the housewife as a quality product. In the past, Purina has been pressured into advertising of a token nature to relieve pressure or pacify a leader or processor. Most of these projects failed because of an inadequate supply of quality eggs.

Purina has conducted tests in five carefully selected markets to get answers to these questions:

1. Can advertising build a consumer perference for a branded egg? The answer is yes. With enough of the right kind of effective advertising, you can establish consumer preference for a branded egg as long as you have quality.

2. Will chains permit it to happen? Probably not if they can help it. The chains consider meat, milk and eggs, along with other perishables like vegetables and fruit, among their most valuable loyalty items—the items that bring the housewife back week after week.

3. What will it cost? It takes a lot of money to do this job, and in many markets it means overpowering the chains and occasionally alienating the loyalty of the professional. The feed manufacturer's margin cannot stand it, and neither can the processor's margin.

4. Can costs be overcome? Most other advertising costs are recovered from the consumer. As yet, we haven't found a way for the manufacturer to recover egg advertising costs from the consumer.

5. Can Purina salesmen and dealers provide adequate supplies of quality eggs? In many areas, our problem is both quality and quantity. We found our salesmen and dealers need a lot of help in this field and they are receiving it.

THE TREND TO BUYING BUSINESS—From the days of our first salesman, William H. Danforth, Purina has been a selling outfit. Buying business is exemplified by loose credit, reckless bookings, free bulk facilities, guaranteed profits, no interest, and company-owned distribution. Companies buy business with credit, with deals, with guarantees, by financing chicks, poults, feed, equipment, labor, houses, etc.

Buying business leads to such things as reckless bookings, where dealers take advantage of their bookings to protect themselves against a price advance rather than using them as a sales tool. The large manufacturer takes a tremendous risk on bookings beyond 30 or 60 days.

During the past two years we have had proposals from several sources to exand our company-owned distribution, by contracting direct with the grower. We can increase our tonnage that way, but every move we make in that direction provides more competition with the meat, milk and eggs produced by your customers. It reduces the value of the Purina franchise and reduces the possibilities of attracting high type, big thinking men into our dealer organization. And this is the last thing Purina wants to do.

Larger feeding operations involve more money and increased capital needs. This has led many feed dealers to encourage the feed manufacturer to take a stake in their business by extending excessive credit, and as their ownership equity shrank, to finally take over. We believe this is unsound for our dealers as well as Purina.

THE TREND TO LARGER, FEWER, STRONGER MANUFACTUR-

CK is OK for Profit...Service...Quality

Don't Mix Without CK Econolass

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You'll like the ease with which Econolass mixes, and you'll like the convenience of the moisture-resistant 50 lb. bags.

You'll like the FAST service your orders get from CK—and your customers will like the fast, healthy gains your feeds provide with the added palatability of Econolass.

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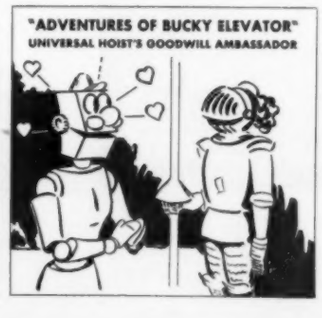

ERS—Sometimes our salesmen and dealers get terribly disturbed because a comeptitor seems to be mopping up with low pricing, loose credit, long term bookings, guarantees or egg marketing deals. It may not be apparent that these competitors are selling the mortar out from between their bricks. Seldom a week passes that we are not propositioned to take over a struggling feed manulfacturer in some area of the U.S. or Canada because of unsound credit deals . . . or because they lowered their ownership equity by taking on so much exposure they couldn't weather the temporary economic storm.

The feed manufacturer who survives in the future must have: (1) a sound sales and marketing plan, (2) a sound finance policy to keep solvent and financially strong, (3) an extensive research program to keep up with new developments in nutrition and a technically trained staff, (4) a network of efficient production facilities to provide uninterrupted service, (5) lowered manufacturing costs, (6) world-wide buying facilities, and (7) a quality control program. In the competitive and challenging days ahead we must take advantage of every possible efficiency. An example is our program for diversification within our own industry.

We believe that feed manufacturing is specialized and highly developed. Therefore, it is wise for the feed dealer to tie closely to a strong manufacturer—a leader in the industry.

THE TREND TO STRONGER CUSTOMER-ORIENTED DEALERS—The last trend I urge you to keep in proper perspective is the one to stronger, customer-oriented dealers. We believe the feed dealer who survives in the future will be "customer-oriented." It means building a service program around what the customer wants and needs. The dealer who grows in the decade ahead will put his customer and his needs at the center of his business building programs.

Have you made a market analysis to find out what your customers and prospects need and want? Do you know what your customers want in the way of service at your Check-R-Mix Mill? Grain bank service? Bulk? Do you find out why a customer quits? What kind of credit policy do your customers consider fair and reasonable? What kind of farm service do your customers want and expect? Do you have a business built to your own wants and needs . . . or do you have a business built to meet the customer's wants and needs?

The customer is going to be the boss in the Sixties. He is going to measure you by the representative of your business who comes to his farm. If your outside sales and service man comes to his farm asking for his business, serving his needs, checking his management programs, watching his sanitation leaks and making it clear that he has a deep desire to help the customer make more money—then your business is bound to rate high in the opinion of the customer.

What portion of the feeders in your market are being contacted regularly? How often are they being asked to buy? I don't believe you can survive in the feed business in the decade ahead without a man in the country servicing your customers and calling on prospects. And don't try to measure his importance solely by the extra orders he brings in.

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your own brand name

Maine Offers Ph.D. In Animal Nutrition

ORONO, MAINE—A new program of study, leading to a doctor of philosophy degree in animal nutrition, has been approved by the trustees of the University of Maine.

It will be the third doctoral program inaugurated at the university. Other doctorates are offered in history and chemistry, according to Lloyd H. Elliott, president of the university.

He said the animal nutrition degree will be offered by a group of departments in the College of Agriculture, including animal science, biochemistry, poultry science and home economics.

NEW IOWA MILL

RED OAK, IOWA—The Farmers Mercantile Cooperative Elevator Co. here recently completed a $100,000 concrete feed mill and elevator.

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We supply everything you need in a Super Concentrate form for you to manufacture a complete line of SWISHER Feeds and concentrates. The SWISHER Program is based on common sense reasoning. Your manufacture of SWISHER Feeds and concentrates is simple and easy. You can do the job of adding the major ingredients of any feed — grain and soybean oil meal — just as well as any big central mill. The fact that you add the major ingredients does not change the nutritive value of the finished feed, and it gives you the advantage of feeds that are always fresh and more appetizing.

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There is a definite trend for big feeders to buy direct from the big central feed manufacturers. They do not want to pay for middleman mark-ups, big handling charges, and excessive transportation costs. With the SWISHER Plan, you automatically eliminate all these costs. You can sell the big feeders as a manufacturer. In fact, you can sell all feeders on a direct manufacturer-to-feeder basis.

YOU HAVE A BIG ADVANTAGE OVER YOUR COMPETITORS

As a franchised SWISHER Feed Service Mill you sell SWISHER Complete Feeds and Concentrates at lower prices because you have extra savings that no one else has! Today's farmer-feeder knows this, so your business volume will increase!

YOU SELL FEEDS WHICH HAVE BEEN PROVEN TO REDUCE PRODUCTION COSTS TO THE ABSOLUTE MINIMUM

Today's feeders are extremely cost conscious. They want the lowest possible costs of production. SWISHER Feeds are proven and are widely known because they reduce production cost to an absolute minimum. SWISHER Feed Service Mills have many testimonials from commercial producers that prove that SWISHER Feeds have produced more milk, meat, and eggs on less total feed, resulting in lower production cost and increased profits.

YOU ALWAYS HAVE PROVEN UP-TO-DATE FORMULAS

One of the problems that local feed mills face is the lack of research and laboratory facilities. However, with the SWISHER Franchise, you utilize the scientific knowledge, test farm data, and the COMPLETE RESOURCES OF THE HUGE SWISHER organization. You are able to **prove** and **guarantee** that you are selling the highest quality feeds that science knows how to produce! **In today's efficiency-conscious world, you must have this backing to really succeed as a local feed manufacturer.**

Dozens of mills have joined in the last several months . . . proof of the benefits that you get from the SWISHER Plan! Isn't it time, then, that you found out about this PLAN? Merely Write, Phone, or Wire — Never an obligation.

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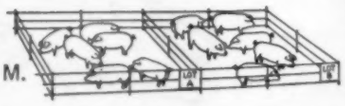
Putting Research To Work



BY SPENCER H. MORRISON, PH.D., D. V. M.

Combination Drug Treatment for Internal Parasite Infections of Cattle

● L. E. Swanson and A. E. Wade, University of Florida, Journal of the American Veterinary Medical Assn., Vol. 138, No. 1, pp. 1-6, Jan. 1, 1961.

ABSTRACT AND COMMENT

There is evidence that phenothiazine may not be able to effectively control many parasites under commercial cattle conditions in some areas of this country when pastures, etc., are heavily infected and cattle population is dense. This is especially the case in Florida where abundant rainfall and low winter temperatures perpetuate and increase the parasitic population. Also, phenothiazine does not effectively remove certain species of parasites that affect cattle, i.e., Copperia sp., flukes, etc.

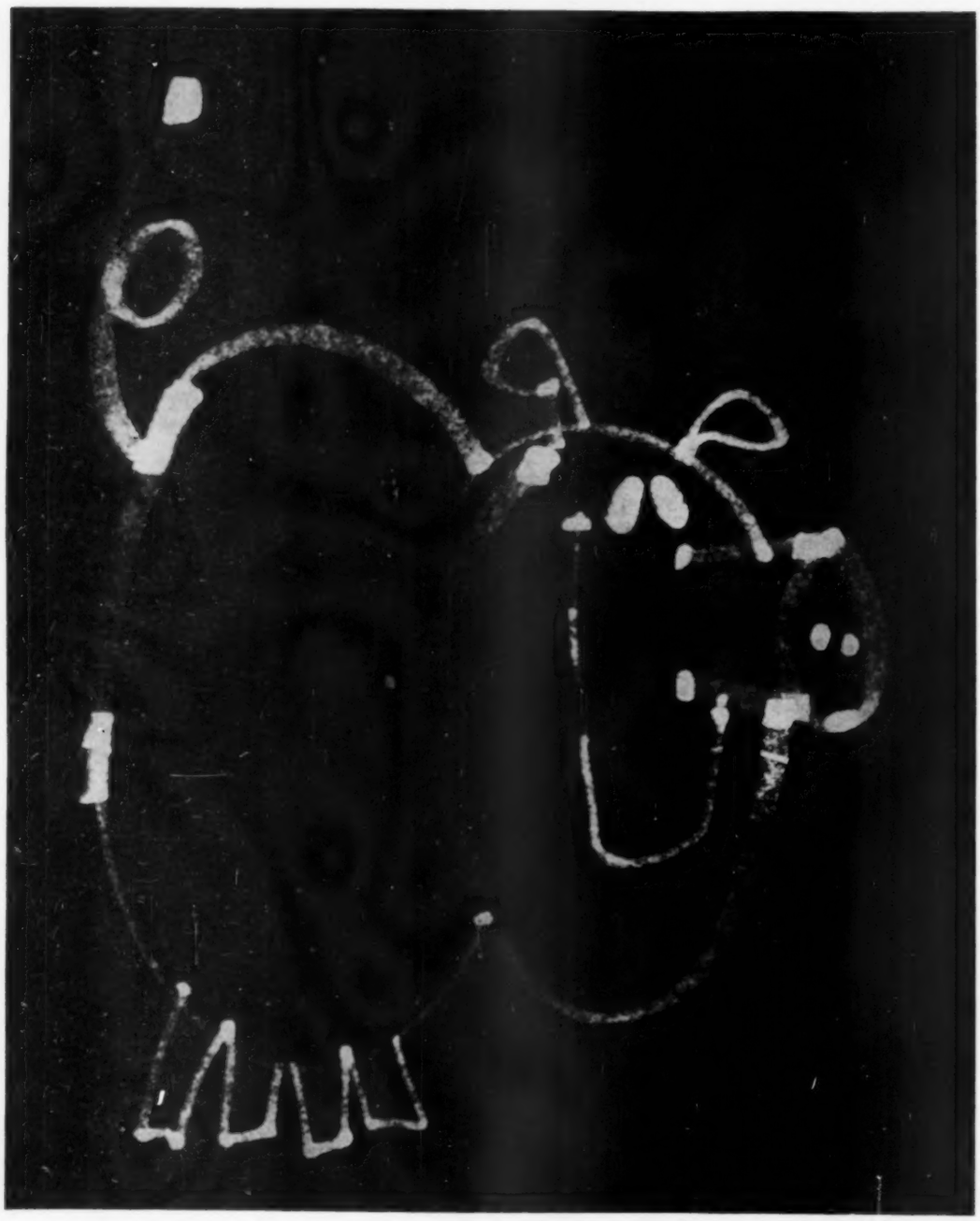
It was believed that a combination of phenothiazine, piperazine citrate, and hexachlorethane might be more effective than phenothiazine alone. The 55 cattle used in these experiments were obtained from Florida herds where death loss from parasitism was concurrently occurring. A total of four trials were conducted with average ova counts for specific parasite(s) taken pretreatment and postreatment. No untreated controls were used, except in the last trial.

The results showed that the combination of drugs used in the trials was chemically compatible, but that the mixture was unstable and sedimentation consequently occurred after several hours. However, if used immediately after mixing, the preparation was easy to administer with a glass-barrelled dose syringe. The formula of the drug combination was as follows: Piperazine hexahydrate, 160 gm.; phenothiazine, 100 gm.; citric acid, 160 gm.; hexachlorethane, 100 gm.; ferric ammonium citrate, 10 gm.; cobaltous sulfate, 0.4 gm.; copper sulfate, 1 gm.; methyl paraben, 0.45 gm.; proyl paraben, 0.09 gm.; Tween "8," 10 ml., and water to make 600 ml. Dosage employed was 60 ml. (2 oz.) per 100 lb. of body weight. Each 2 oz. contained 10 gm. of phenothiazine, 10 gm. of hexachlorethane, and the equivalent of 7.1 gm. of anhydrous piperazine.

The trials showed there was no therapeutic incompatibility between the individual drugs in the mixture. Also, in the 42 head treated, clinical signs of parasitic infection rapidly disappeared and the fecal counts were markedly reduced. No signs of toxicoses occurred, even though most of the treated cattle were thin and weak. In the one experiment with untreated controls, it was interesting to observe that although fecal ova counts were held to low levels by the administration of the drugs, there was no difference between gains of treated and untreated cattle. The authors state that the lack of reponse could be explained on the basis that the parasitic infections were not heavy enough during the latter part of the experimental period to have caused a serious deleterious effect. This probably is supported by the rather low total worm counts found at necropsy of the controls, and in spite of heavy loads in controls and treated cattle at the start of the trial.

This indicated also that both treated and control cattle recovered from parasitic infections with increasing age, and it is well-known that such age resistance exists, especially if cattle are adequately fed while on infected pastures.

Under the conditions employed it appeared that this combination of drugs was one of the most effective available treatments for control of gastrointestinal parasites under Florida conditions. Under a critical test, a single dose of the combination drugs was highly effective in removing wireworms (H. contortus, 100%), nodular worm (Oe. radiaturm, 100%), lesser stomach worm (O. ostertagi, 81%), bankrupt worm (T. axei, 93%) and Cooperia sp. (97%), but had little efficacy (36%) on hookworm (B. phleobotomum). It also appeared to be effective in reducing the liver flukes present in experimental lots. The drug combination appeared to be fully as effective under the trial conditions in removing parasitic infection as in the critical dosage test outlined above. In the trial conditions, it should be pointed out that in several instances, repeated doses (up to three total doses) were adminstered.



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'You'll Be Faced With More Restrictions on Drugs Than Ever'

By FRED E. TUNKS
Feedstuffs Staff

CHICAGO—Turkey producers listened intently here at their national convention as a representative of the feed industry reminded them that they "had seen some of the greatest developments in poultry medicaments" then warned them: "You're going to be faced with more limitations on medications than you've ever seen before."

The spokesman was Dr. W. C. Schofield, Ralston Purina Co., St. Louis, one of six panelists who expressed various views in the realm of drugs during the turkey disease sessions which closed the National Turkey Federation convention in Chicago's Conrad Hilton Hotel.

"Veterinarians," Dr. Schofield said, "can't prescribe combinations of medicaments if the government prohibits such combinations."

This statement was answered with several questions from the floor. One: "What can be done to change the laws?" Another: "Are the vets doing anything about these restrictions?"

It was apparent that the questions were easier to ask than to answer. But the audience was told that the Food and Drug Administration is only enforcing laws passed by Congress, so the best thing for the producer to do is to talk with or write to his Congressman. Also, it was explained that the American Veterinary Medical Assn. is very much aware of the restrictions and has set up a program to investigate the resulting problems and to develop means of influencing possible changes.

Growers' Responsibility

Dr. H. E. Adler, school of veterinary medicine, University of California, Davis, said it was "the responsibility of the grower to produce a bird that not only looks good on the outside but one that will also look good in the processing plant."

Panelists credited drugs with helping the producer meet the responsibility noted by Dr. Adler, but Dr. Joe Alberts, department of veterinary medicine, University of Illinois, questioned "the need for 3, 4, 5 different drugs in the feed at the same time." He tempered this statement, however, by agreeing that "drugs are needed to help the birds along."

In a discussion by Dr. B. S. Pomeroy, department of veterinary medicine, University of Minnesota, it was noted that potentiation has proved to be a valuable method of increasing the effectiveness of antibiotics. Also, there were comments which indicated that potentiation should be practiced with care "because it can upset various factors and result in leg weakness."

Another member of the panel was Dr. Robert Ringer, department of poultry science, Michigan State University. Moderator was Dr. J. Holmes Martin of NTF's convention program advisory committee.

Dr. W. A. Billings, for many years a University of Minnesota extension veterinarian, volunteered in a talk which was not a part of the panel discussion: "If there's trouble in this business of putting stuff in feed, the industry brought it on themselves . . . We have added these things indiscriminately."

VERMONT FIRM GETS CHARTER

MONTPELIER, VT.—The C. H. Stearns Co., Inc., a new firm in Johnson, has been granted a charter, here, by Howard E. Armstrong, secretary of state, to engage in the feed and general retail business. The company has $200,000 in capital stock. Incorporators are Joyce S. Conger, Georgia W. Balch, D. Burleigh Smalley and Charles T. Conger, all of Johnson.

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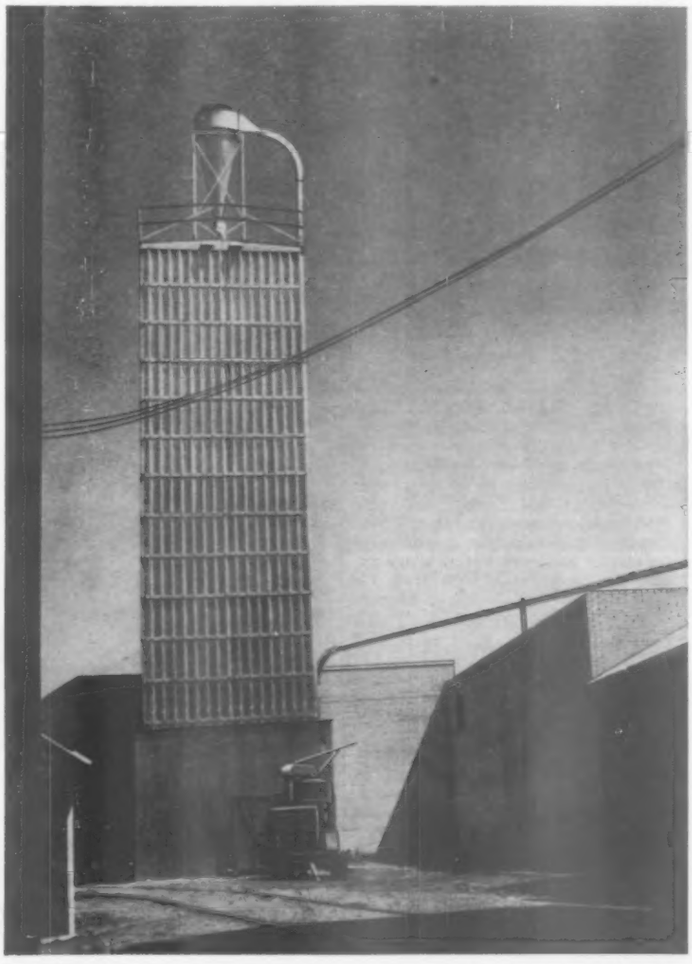

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Simple "switch-over" connects the Grainvayor to one set of pneumatic ducts for conveying material to storage, another set for moving supplements to the mill.

Out in Colorado Springs you'll find the only feed mill of its kind in the world!

What makes it so unusual? The way bulk supplements are conveyed with a Myers-Sherman Grainvayor . . . an idea widely used in the grain trade but brand new to feed manufacturing.

Before Simpson and Company converted to bulk handling, it took four men sixteen man-hours to unload a car of bagged supplement . . . required even more manual labor at different steps along the way. Now, with Grainvayor on the job, one man handles car unloading single-handed . . . all further handling is eliminated.

Grainvayor takes cottonseed meal, soybean meal, alfalfa pellets, and other bulk materials right from incoming cars and conveys them straight up nearly 100 feet into the 300-ton storage tower. Later, when they're needed in the mill, it conveys them to holding bins over the mixers, nearly 100 feet away.

And that's not all! Because it's completely portable, the Grainvayor can be used throughout the year for all types of grain conveying, too. Permanent pipes are now being installed throughout the mill to which vacuum cleaning attachments can be connected . . . enabling the Grainvayor to power the entire mill cleaning system.

If you'd like to find out, without obligation, how Grainvayor can handle more jobs better in your mill, just drop us a line.

Gen. Mgr. Alf Owens and Asst. Mgr. Robert Davis inspect the heart of their unique pneumatic conveying system.

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Use Feedstuffs WANT ADS for RESULTS

The new Pillsbury plant at Jasper, Ala., serving the big north Alabama broiler area. The mill building, in the center, is of concrete construction. On the right is the building housing offices, laboratory, locker rooms and maintenance shop. Two 18,000-gal. liquid tanks and covered unloading areas are on the left.

This picture is taken from the side of the plant opposite to that shown in the adjoining photo. On the right are the rail and truck unloading facilities. In the foreground is the steel warehouse building for bagged materials. On the left may be seen the structure which houses the maintenance shop.

Pillsbury Co.'s New Alabama Plant Exemplifies Modern Production Developments

By Roger Berglund
Feedstuffs Managing Editor

There are a number of trends in feed production and distribution which are continually coming to the fore—such things as specialized feed manufacture for nearby producing areas; increased production efficiency with a minimum labor requirement; maximum attention to quality control and prevention of contamination in batching and materials handling, particularly in view of today's critical feeds and government controls on medicated feeds; bulk handling of finished feeds as well as ingredients.

All of these things, and more, are exemplified in the new highly automatic plant of the Pillsbury Co. at Jasper, Ala. This mill, specializing in broiler feeds and concentrates for the increasingly important north Alabama broiler area, is recognized as one of the most modern and efficient in the feed industry today.

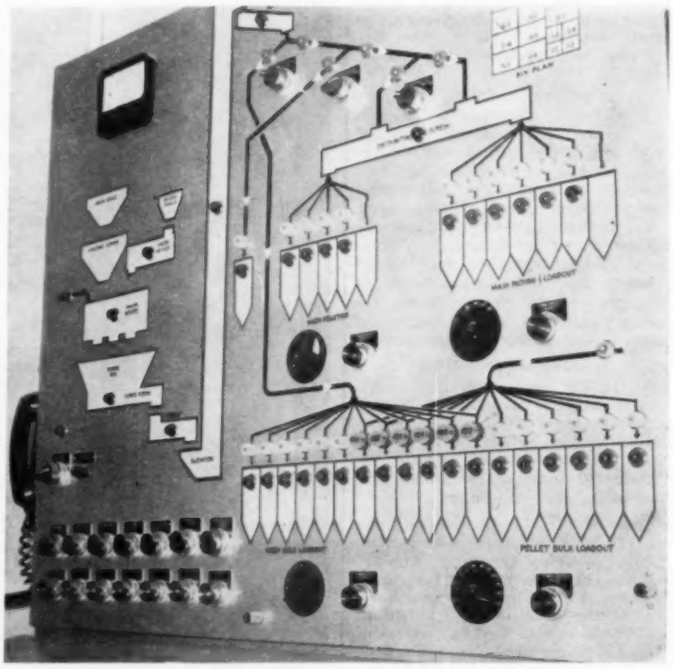
Pillsbury feed officials point out that the new Jasper operation typifies the firm's current approach to feed marketing. It fits in with the company's previously announced decentralization program, with individual plants operating independently and serving primarily nearby concentrations of livestock and poultry.

The Jasper plant turns out broiler concentrates and feeds, plus some other poultry feeds and hog feeds. Much of the output is concentrates for nearby broiler operators who combine the concentrates with grain for their integrated producing operations.

The Jasper facility includes a concrete mill building, 48 by 64 ft. and 148 ft. high; an attached 48 by 120 Butler steel warehouse for bagged ingredients and feeds; and a nearby office and shop building of steel construction with brick facing.

The ultra-modern set-up is capable of producing at least 28 tons of feed per hour, and it can be done with very efficient utilization of manpower.

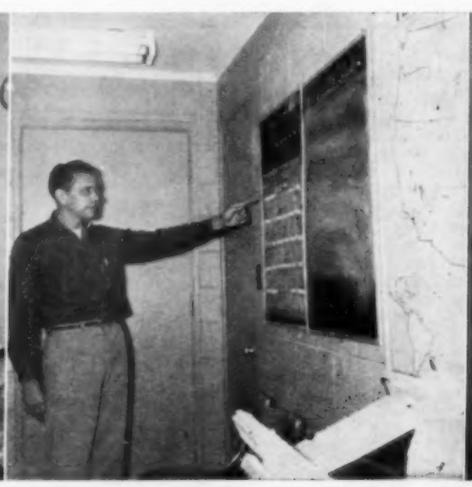
One of the features of the operation is a highly automatic proportioning and mixing system which includes use of electronic formula (or "peg") boards in the control panel.



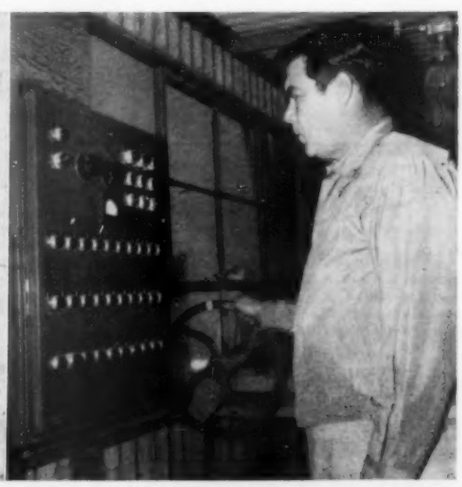
This board, with lights for the bins and handling and processing equipment, is in the batching and mixing control room. It shows much of the mill flow.

Among other features are a special automatic proportioning and mixing system for micro-ingredients which is part of the over-all batching system; a 7-ton batch mixer, largest in the feed industry; maximum use of grav-

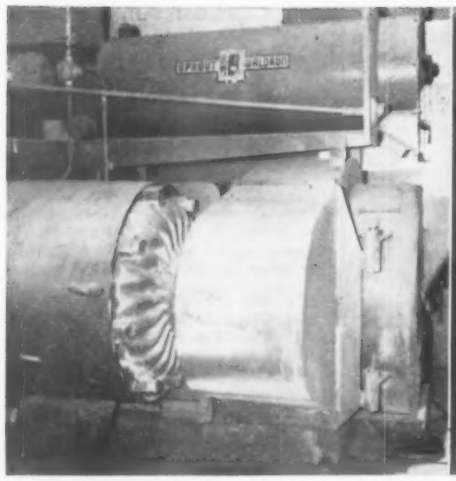
Ed Widner, production manager at Jasper, with one of the electronic formula boards on which feed formulas are set for insertion into the control panel.



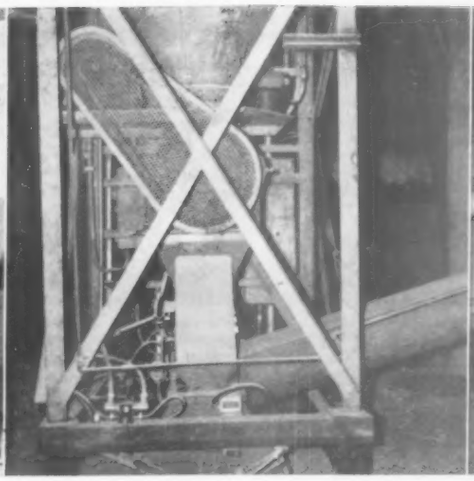
Rembert Corneilson, the procurement expediter, is shown in the office area in the warehouse. He is pointing to a bin board used in inventory control.



Mr. Widner is shown here at the ingredient unloading controls. Unloading facilities and distribution into the ingredient bins are controlled from here.



A 100-h.p. Sprout-Waldron pellet mill is used for pelleting feeds at Pillsbury's new Jasper mill.



A Fuller negative air pressure system is used to take ground grain from the Jacobson hammermills.

The control room inside the mill for loading out bulk feeds. The scale dial is partially visible.

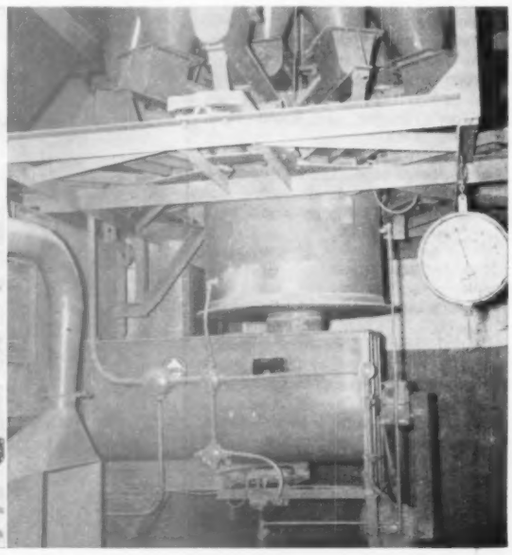
ity, along with minimum and certain conveying equipment, to minimize any contamination problems; a one-man packing and palletizing station; use of equipment, controls and laboratory facilities to assure built-in quality; and a two-break crumblizing system. The plant also is noted for efficiency in unloading, grinding, dust control and other operations.

The plant has six hammermill bins and 26 mixing bins with a total capacity of 2,100 tons. Finished feed bin space totals 750 tons. In addition to two pellet bins and four packing bins, there are 23 bins for bulk load-out. The plant has three elevator legs—receiving, mash and pellet legs. Five remotely controlled turnheads are used for distributing elevated materials. Horizontal conveying is at a minimum, with belt and Dracon conveyors used in certain instances.

The plant was planned and designed by Pillsbury's own staff, headed by Lonnie Wright, manager of production and engineering for the feed division. The contractor was Sullivan, Long & Hagerty, Birminghom, Ala.

The general manager of the Jasper operation is Ben Williams. The enthusiastic production manager, who went to Jasper after directing production at other Pillsbury mills, is Ed Widner. Jack Reeves is sales manager; Bill Holcomb, plant superintendent; George Haefner, plant accounting manager, and Rembert Cornelison, procurement expediter. Quality control is under the supervision of Erston Bonner.

A view of most of the Hardy panel board in the control room. One of the scale dials is in the background, as is a board pictured in greater detail on p. 46. Proportioning and mixing of both the principal ingredients and micro-ingredients are controlled automatically from this control center.



The micro-ingredient proportioning and mixing system. Some of the feeders are partially visible overhead. Materials feed into the 100-lb. scale in the middle of the picture and then go into the small batch mixer below. On the left is a cut-in hopper for direct addition of some materials.

Mill Operation

Here, in brief, is the mill operation:

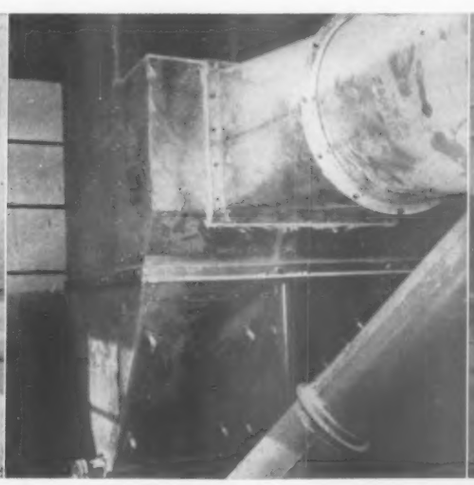
Receiving: A 45° 60-ft. truck dump is used in unloading trucks, and in eight minutes, a truck can be weighed on the plant scale, probed and dumped. Bulk ingredients also are received in hopper cars or boxcars and weighed on a dead center track scale, and a power shovel is used with boxcars. The incoming materials move by slider belt conveyor into the mill, go over a vibrating screen scalper, are elevated with a 6,000-bu.-per-hour leg, and are distributed through a 30-hole Hayes & Stolz turnhead into the ingredient bins. The unloading man handles both truck and rail receiving and selects the bins from the control center at the unloading station. The system is such that he can, for example, begin unloading a car, then handle a truck, and then go back to a car. The system is interlocked for maximum control.

Grinding: Grains are ground through two 100 h.p. Jacobson hammermills. A Fuller negative pressure air system is used to move ground materials from the hammermills to the top of the mill. The mixer man can start and control the grinding set-up.

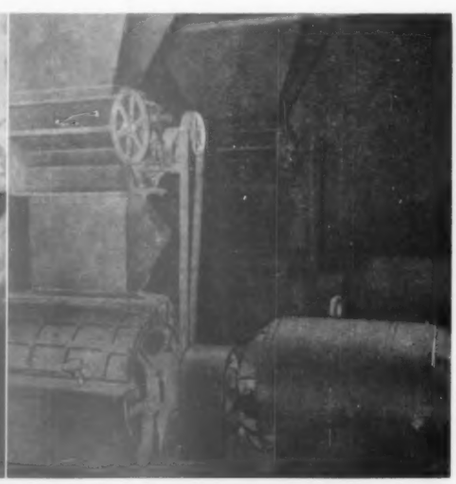
Proportioning and Mixing: Materials move from the 26 mixing bins (including one premix bin for certain premixes made in the batch mixer) by screw feeder to the 5,000-lb. hopper scale. Three drafts, which assure

(Turn to NEW PLANT, page 57)

A partial view of the multiple-hopper scale (above) and the surge hopper over the big 7-ton batch mixer.



This shows part of the Smico air filter system used for dust collection at Pillsbury's new feed plant.



Two Jacobson hammermills are used to grind the grain which goes into poultry and other feeds at Jasper.

JOE BROOKS

BY AL P. NELSON

It Pays to Look Ahead

The mid-winter snowstrom was a dilly. Already there were 6 in. of snow on the ground, and the white, swirling curtain swept from sky to ground, indicating a continued fall of perhaps another 6 in.

Inside the Joe Brooks feed mill and store, grind and mix activity for farmers had slowed, due to the storm. The mobile mill was out in the country cleaning up on mixing and would soon be in.

"What a storm!" said Smiley Johnson, as Joe and most of the employees stood around the farm store division looking through the windows. Only Rusty Hagen, the bookkeeper, had work to do.

"Joe, can we sleep here tonight, if we get snowed in?" asked Milt.

"Sure," said the feed dealer, "so long as you pay for your room rent by sweeping the floor."

"Heck, we just swept an hour ago," Milt said. "You taught us to be good housekeepers, you know."

"Fine," Joe smiled. "Just keep the habit, boys." Then he turned to Smiley Johnson, the firm's handy man who knew how to make signs. "Smiley, I've got an idea. Come into the office with me."

The two men went into the office. Milt turned to Pop Henley. "That Joe, he can't take it easy for one minute. He always has something to do, or something to develop. How does he get that way?"

"Huh," Pop said, "that's easy to figure out. He has to keep busy. That's why he's head of this milling company and you and I are working for him."

"I suppose so," sighed Milt. "I wasn't born with that kind of ambition. I've another kind."

Pop frowned. "I know. I know. Don't say it. Let's not talk about redheads for one day."

In Joe's office, Joe leaned back in his favorite swivel chair and folded his hands behind his head. The snow slithering against the office windows imparted a sort of closed, shut-in feeling.

Getting the Jump

"Smiley," said the feed dealer, "I've got an idea for selling fertilizer that I'd like to talk over with you."

"Fertilizer! Gee, Joe, do you think farmers want to talk fertilizer when they'll have a foot and a half of snow on the ground by morning?"

"No, they won't want to," Joe said, "but it's our job to direct their attention to the fact that we can get quick spring thaws from now on, and then bing—fertilizer application season will be upon us. We've got lots of room to store bag fertilizer at this time of year, but our bulk bins are pretty full."

"I'll help all I can, Joe, but how?" Smiley looked worried.

"We've got to promote our fertilizer a little differently this year, competition will be tough," Joe said. "We need a fresh, different approach. Got any ideas?"

Smiley frowned, then shook his head. "No, Joe."

Joe reached forward and pulled a piece of paper from his spindle. "Well, I have an idea and I need your help, especially on painting some signs."

Smiley looked attentive.

"I want a big window sign," Joe said slowly, "of a short stock of corn in natural colors, and a high stalk of corn in color. Copy on the sign should read 'DO YOU WANT 60 OR 100 BU. CORN? USE OUR FOUR STEP PLAN FOR 100 BU. CORN'."

Smiley's eyes lighted with the interest a good sign man usually shows when an idea takes hold in his brain cells. "Sounds interesting," he said. "Green is a wonderful color to raise the spirits in mid-winter. What's the four step plan?"

Joe chuckled. "I hoped you'd ask that. People like to follow specific programs. If you're interested, I'm sure farmers will be. My four point program for 100 BU. CORN is:

'1. Buy our quality seed corn.
2. Order sufficient fertilizer NOW (based on soil test recommendations.)
3. Use pre-emergence weed control to lower labor costs.
4. Proper sidedressing.'"

Smiley nodded. "I get the idea, Joe. Instead of just selling fertilizer, you are selling MORE bushels of corn."

"That's it."

"And," went on Smiley, "you're

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WORLD LEADER IS NOW BETTER THAN EVER!

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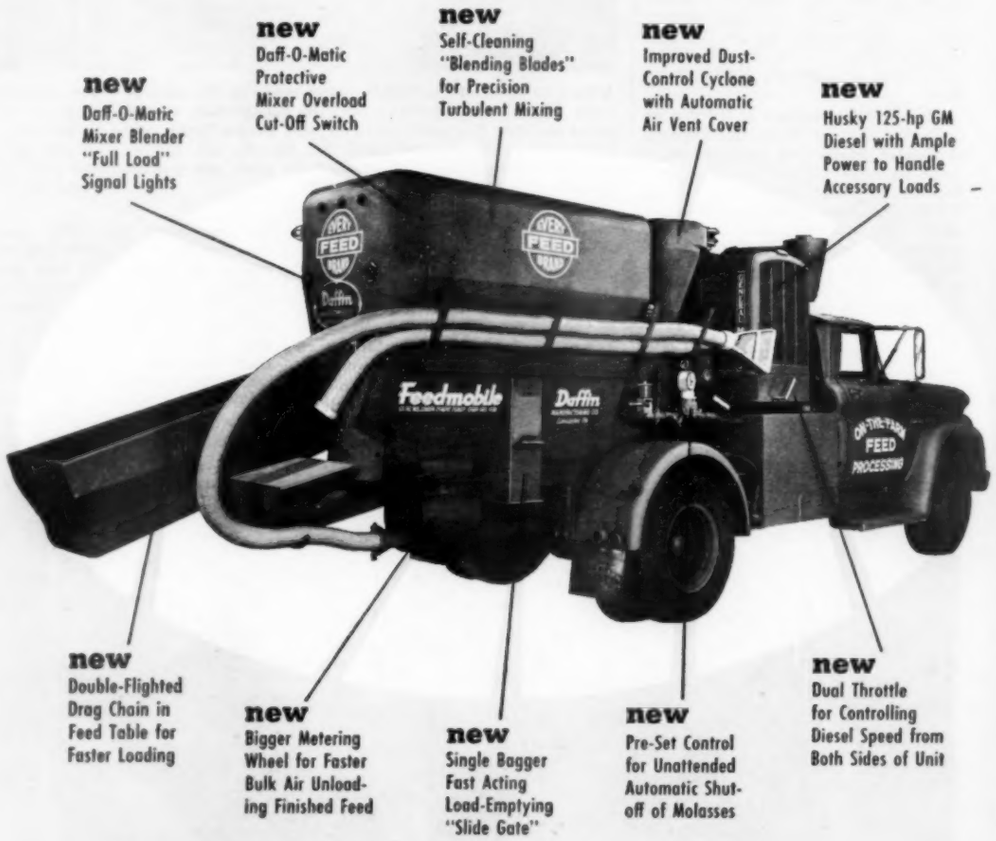
new
Daff-O-Matic Mixer Blender "Full Load" Signal Lights
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The most economical Mobile Feed Mill ever built, engineered for top efficiency to return the most owner dollar-profit over the greatest number of years with the least amount of labor, and at the very lowest maintenance cost. In the long run—A Daffin returns the most—for the least!

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showing them HOW it can be done, not just making a big claim based on general statements."

Joe smiled. "Smiley, you sure assimilate an idea fast."

"Thanks, Joe. I don't sleep through the sales training meetings."

"Another thing," went on Joe. "I want an open bag of seed corn in that display window, with yellow corn spilling out on an artificial green grass carpet, maybe two bags if there is room. Then, I want twice that number of open bags of fertilizer, with fertilizer spilling out."

"I get it," said Smiley admiringly. "You want them to see the green cornstalk, the yellow corn and the greyish fertilizer to bring the planting season close to them, even in this wintry weather."

"Right, Smiley. And I want a separate sign which should emphasize the importance of ordering fertilizer now, to get the right analysis, to get properly cured fertilizer and have it ready for instant delivery when wanted."

"And how about some copy which tells the farmer that for every $1.00 he invests in fertilizer, he can get back up to $3 that same year?"

"Yes, sir!" agreed Joe. "If we can get that window in by the end of the week, I will follow it up with a big fertilizer ad in the next issue of the local newspaper."

"I'll do it," Smiley said, "even if it means staying up late some nights. Gosh, I can see how in the feed and fertilizer business you can't rest on your oars. You always have to be looking ahead to the next selling season. The early bird actually does get some extra business by being on the ball before his competitors, doesn't he?"

"It has worked out that way for us, Smiley. The farmer expects us to call his attention to his seasonal needs. Let's not disappoint him."

BACK TO SCHOOL—Salesmen for Kent Feeds are pictured here attending one of the firm's brush-up classes designed to help sales personnel sell better in today's competitive markets. Instructor in background is W. F. Schafenacker, Kent Feeds sales manager.

®Feedmobile!

MOBILE MILLING

JOIN THE MILLING TREND OF TOMORROW, NOW!
Mobilize with a new Daffin today, because—more modern feeders are switching to Daffin processing than to any other feed service!

new Visible Air Pre-Cleaner Screens out Dirt, Gives Diesel Long Life

new Daff-O-Matic Feed Table Governor Is Controlled by R.P.M. of Diesel

new Self-Sharpening Longer-Wearing Case-Hardened Steel Hammers

new Twin Vertical Screws, Turbulent Mixing Minimize Bridging Improve Accuracy

new Faster-Cutting Roughage-izer Devours 4 to 6 Whole Bales/Min

new Heavy-Duty Steel Hammermill Shaft, Husky Bearings for Longer Wear

new Switch Control Slows Hammermill To Permit Proper Corn Cracking

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new Daff-O-Matic Feed Table Lift, Finger Tip Control. (Optional feature)

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What are you looking for? . . . MORE FACTS? Write for new Bulletin No. M-11. ACTION? Set up a date with a Daffinman!

Daffin Manufacturing Co., 3275 North Prince Street, Lancaster, Pa., USA.
A Division of Daffin Corporation

Daffin 15 OPPORTUNITY

Kent Feeds Salesmen Go Back to School

MUSCATINE, IOWA — The sales staff of Kent Feeds, including territory managers, assistant managers, district managers, livestock specialists and sales trainees, has been going back "to school" to brush up on sales techniques in today's competitive markets.

The series of five all-day "schools" started this past fall and will continue through April. Topics covered at the sessions include: increasing the size of the order; selling ideas, plans and programs; making reports work; the professional sales call; merchandising tailoring; selling to individual customers; making better use of sales tools; handling objections and complaints; making better use of time in selling; organizing for selling; territory analysis and routing for greater efficiency.

W. F. Schafenacker, sales manager, points out: "The salesman today cannot succeed in following the techniques of 10 or even 5 years ago. There is an entirely new relationship between him and the customer. Today's customer needs the salesman because he is the pipeline to the stream of new products that are flowing into the market, because he is a purveyor of selling ideas, because he can offer counsel and guidance on promotion and advertising, and to help him achieve more sales and bigger profits."

The sessions are being conducted by Mr. Schafenacker and Roy Luce, director of sales training.

Commercial Solvents Appointment Told

NEW YORK — Commercial Solvents Corp. has named Max D. Howcroft as sales representative for the animal nutrition department, according to announcement by I. Roy Cohen, manager of the department.

A native of Salt Lake City, Mr. Howcroft attended the University of Utah. He has been active in sales work for 15 years, most recently having been associated with Chas. Pfizer & Co., Inc.

Mr. Howcroft will service feed manufacturers in northern California and Nevada on Baciferm—CSC's zinc bacitracin feed supplement—and other CSC products for the feed industry. He will reside in Modesto, Cal.

Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR FOOTED ANIMALS

Effective Utilization of Sales Manpower

"Methods have been developed which have enabled us to take much of the guesswork out of sales manpower management."

By S. N. Stevens
Stevens, Thurow & Associates

EDITOR'S NOTE: What makes an effective salesman, and how can a sales force be managed for best results? Feed men will find some answers to this question in the accompanying article. Dr. S. N. Stevens, president of Stevens, Thurow & Associates, presented suggestions on effective use of sales manpower in a talk at the annual Feed Marketing Seminar sponsored by the Sales Executives Council of the American Feed Manufacturers Assn. This article is from Dr. Stevens' talk. While it deals with selection and direction of salesmen in general, persons in the feed industry will find it of a great deal of interest.

The study of effective manpower management has been my business for most of my professional life. Through research, the actual application of psychological principles to vital work situations, and through consultation with management, I have had opportunity to delve rather deeply into what makes an affective salesman and what kind of management organization can produce the most successful and profitable results.

In spite of all of the technical research that has been applied to the study of human nature, there remain substantial areas of ignorance. Management of men is not quite a science, and it is more than an art. When we combine what we know as the result of psychological research with what we intuitively feel to be true, we are most likely to make judgments and decisions which will be wise and helpful. Where we ignore science because it is not a completed thing and depend exclusively on our accumulating experience residuals, we are very likely to make many serious errors and fail in our efforts to manage men.

What is true about the management of manpower in general is particularly true in regard to the management of sales manpower. It is in the area of the selection, training and supervision of salesmen that some of the most creative research has been done. Scientific methods have been developed which have enabled us to take much of the guesswork out of sales manpower management. Today no sales manager needs to depend on intuition for his judgments as to whether a man can and will sell his product. Psychological research, properly applied, will supply information on the basis of which he may be sure that his decision to hire will be right eight times out of ten.

Methods have been developed for the study of the market and for an analysis of what the customer wants, as well as the price he is willing to pay for it. Research studies in marketing have supplied the sales manager with scientific insights concerning the nature of the sales environment in which his salesmen will have to work. A control of the environment plus a determination of the fitness of the salesman to sell are aspects of science in management.

Effective sales training need no longer be a catch-as-catch-can proposition. We know so much about the psychology of learning that it is possible to organize training methods and materials in such a way as to create optimum learning on the part of the salesman. Shotgun methods are no longer necessary in the organization and the administration of sales training.

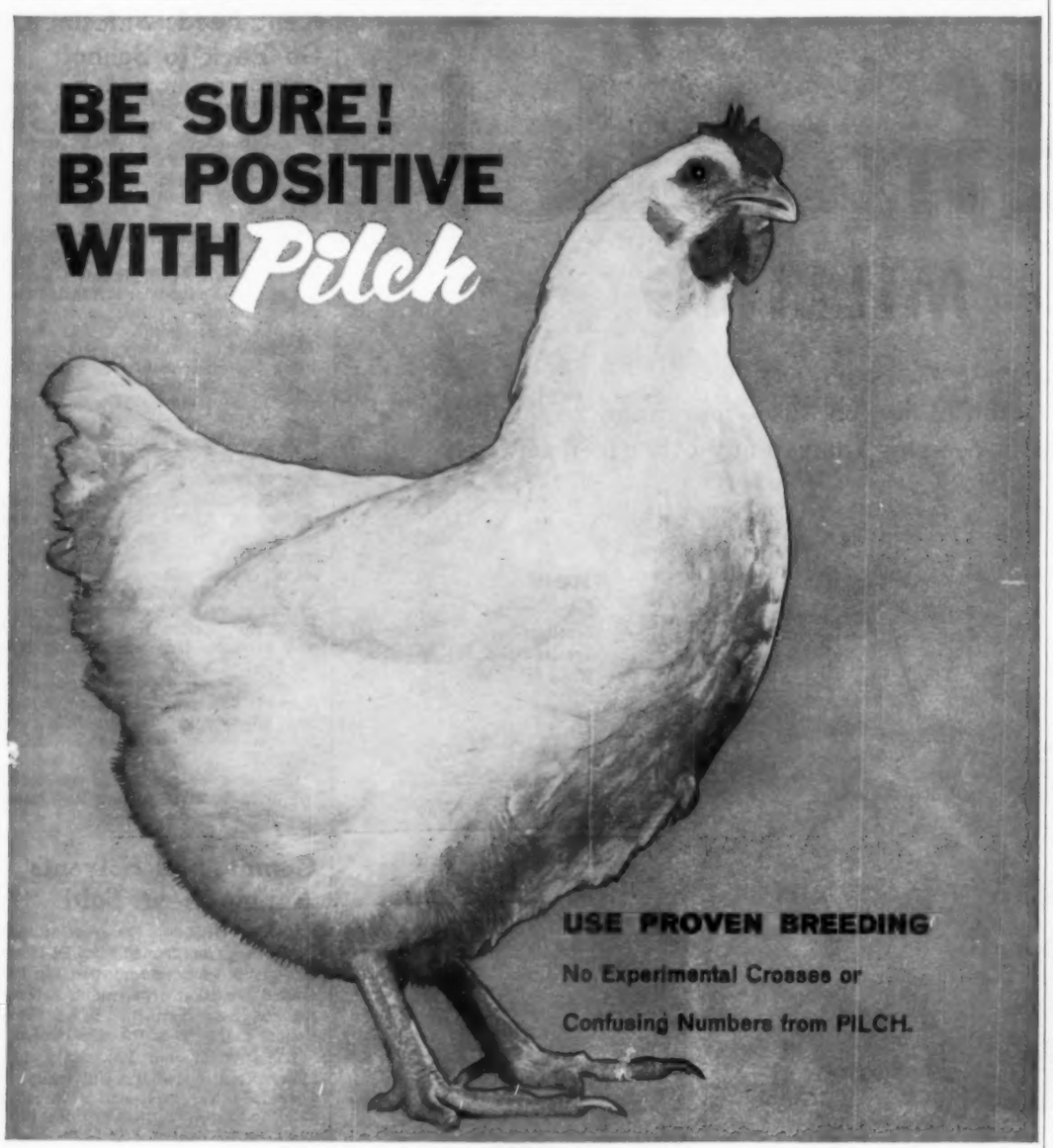
Motivation

Studies in human motivation have been very revealing. We now know beyond any reasonable doubt that the salesman is primarily motivated by his human desire for power and prestige. He is not motivated primarily by security or social service. Psychological instruments have been developed whereby a man's interests, drives and motivations can be analyzed. It can be determined whether the individual prospect for a sales position has, or has not, the dynamic forces at work in him which are characteristic of superior salesmen everywhere.

Most of us recognize the fact that creative selling has been the backbone of our American free economy. It has been the peddler, moving along in back of the pioneer, who has satisfied the pioneer's basic needs and aroused his desire for something better. It has been the salesman, with driving ambition and great persuasive skill who has raised the level of aspiration of the American consumer as to what he must have in order to achieve a level of want satisfaction somewhat equal to his aspiration for himself and his family.

Most of us recognize the essential role that selling and salesmanship has played in making America what it is. We know, also, that if our society is to continue to enrich itself there must be expanding needs and wants which aggressive salesmen will try to satisfy through the sale of an ever expanding product line.

Forces are at work, however, in our contemporary society which tend to create the image of the salesman as the exploiter of human weakness, rather than the satisfier of human wants. Competitive selling is thought of as socially and economically unsound. The individual salesman has



When buying from Pilch you are assured of receiving progeny from the best available scientific full family pedigreed breeding program in the poultry industry today. You can also be assured that the entire pedigreed breeding program is geared to the specialized development of meat type breeder pullets only.

To be sure of your next year's profits — order Pilch Breeder Pullets now!

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GO AND GROW WITH FUL-O-PEP!

Expanded grind-mixing facilities and new bulk handling equipment enable Berkemeier Feed & Grain to serve its customers more efficiently—and help build sales. "Experienced Ful-O-Pep engineers did much to help cut total installation costs," says Robert L. Berkemeier, owner. "Backed with Ful-O-Pep know-how and experience, bulk and grind-mixing keep me abreast of trends in livestock feeding . . . and it's proving an excellent investment in my area," he continued.

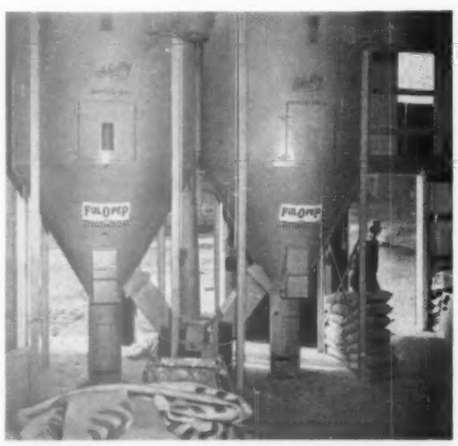
"Ful-O-Pep means business . . . when you go bulk and grind-mixing!"

—says Robert L. Berkemeier, Berkemeier Feed & Grain, Sexton, Ind.

"Our new bulk and grind-mixing installation is not yet complete, but already we've stepped up grind-mix business 25% over a year ago," says Robert L. Berkemeier, Berkemeier Feed & Grain, Sexton, Ind. With new bulk tanks and a new bulk truck, Mr. Berkemeier expects further increased sales.

"More and more feeders are turning to bulk and grind-mix services," Mr. Berkemeier said, "and Ful-O-Pep means business with its expanding bulk and grind-mix program!" Ful-O-Pep helped with engineering assistance . . . Ful-O-Pep servicemen travel with Berkemeier salesmen regularly. And Ful-O-Pep Concentrates, Mr. Berkemeier says, make result-getting feed that keeps customers coming back for more.

GO AND GROW WITH FUL-O-PEP! *For information on the Ful-O-Pep 5-Point "Build-for-the-Future" Program, write Feed Sales Division, The Quaker Oats Company, Merchandise Mart, Chicago 54, Illinois.*



Two 2-tons mixers and a 16-tons-per-hour grinder, recently installed, are 100% more efficient than the older inadequate system. Now, there's less waiting, and customers are happier with the service.

Home-grown corn plus Ful-O-Pep Concentrates are being converted into a highly efficient hog ration. Many business-minded farmers like to keep their cash outlay low with local grinding and mixing, Mr. Berkemeier points out.

This modern-minded dealer flies his own airplane . . . and he frequently uses it in his work. He's depending on forward-looking Ful-O-Pep to help him keep pace with progress in today's rapidly-changing feed business.

FUL-O-PEP

MADE BY THE QUAKER OATS COMPANY

lost social status in the business economy. This is a problem of no mean proportion, and its solution is urgent. If more and more of our young people are primarily interested in security, maximum pay with minimum effort, freedom from competition and other basically socialistic ideas, we shall have increasing difficulty to maintain an expanding economy and healthy competition.

Too many sales managers are indifferent to the real causes resulting in their failure to secure top flight men to represent their companies in the sales field. The development of other functions of marketing, such as advertising, sales promotion, etc., has developed a false sense of security in the minds of marketing people who naively are influenced to believe that with all of the modern marketing techniques, the role of the personal salesman has become less critical. Salesmen as a whole are not paid as well as they used to be paid for the effort they make. Engineers and other professional specialists are getting higher initial salaries and are being looked upon as individuals of greater potential management worth than salesmen. Yet, there seems to have been no organized protest by salesmen and other marketing personnel against the attitudes and habits of thought of other persons in management and in our society which makes a condition, such as we have just described, possible.

A top flight salesman today is the greatest profit center that a corporation has. He should be cherished, rewarded and recognized. His future in management, everything else being equal, should be as sure and as available as the management future of any other professional or specialist.

If the trends now existing are to be changed, it will be imperative for sales management not only to fight for the salesman, but to do a better job in recruiting men who have the gifts and the graces to do a superior competitive job.

What are the outstanding characteristics of the individual who is going to be a successful salesman?

(1) He has somewhat more intelligence than is necessary to understand his customer, his product line and his market. He doesn't have to be a genius or a giant, but he has to have that level of educability bounded by the requirements which have just been set up.

(2) He is intuitive, rather than analytical, in the way he goes about defining problems and solving them.

(3) He is persuasive, rather than critical, in his approach to both the personal and social problems connected with his business activity.

(4) He is a hyperkinetic type of person with a very high energy level. He tends to work in spurts. He applies himself with intense concentration for short periods of time.

(5) He is power and status motivated. To put it very crudely, he is hungry for money and the power and status that money makes possible.

(6) He is an egoist, whose ego feeds on his capacity to influence the customer to buy.

(7) He is a man whose interests are persuasive, with a secondary cluster very specifically germane to the product field in which he is selling.

(8) From a personality point of view, he is emotionally tough minded, thinks in terms of his outer environment, rather than himself, and can, thereby, withstand the rigors of rejection, delay and conflict. He will make the next call because he convinces himself that it is going to be the one that will produce the sale.

(9) He possesses the ability to exercise dominance in social situations. He does this without domineering, or without throwing his weight around at all.

(10) He has a healthy confidence in his ability to cope with any sudden change or variation in the work environment. He has a healthy ability, in other words, to be "fast on his feet" in the dynamic environment of a sale in the making.

(11) He knows how to be decisive enough to lead the customer to a decision, but dependent enough to make the customer believe that he, himself, did the buying, rather than the salesman the selling.

Here we have a type of man. He is quite different from an accountant or a controller, a professional engineer or a physician. Every single one of the factors which have been mentioned are subject to some type of quantitative measurement of objective judgment.

Any sales manager who wants to upgrade his field sales operation need only find out, through psychological research, what the upper 25% of his successful salesmen are like. A pattern can be developed from this research, and the sales manager can employ new men who are most like his best men. As a result, he will be able to have more profitable sales volume, with fewer men, or significant increase in profitable sales volume with more men. All that is required is the conviction on the part of sales management that it will use every bit of science that is available in the selection, training and supervision of its men.

Performance Standards

The next and most important step in the upgrading of the sales force is through the use of adequate performance standards against which the individual behavior of a salesman may be measured. Included here are such criteria as attainment of quota, selling at par, share of market and incremental profitability. There has been developed by our organization in recent years a forced choice, universal salesmen's performance inventory. The use of this form by the sales manager will enable him to compare the performance variables of his sales force against his criteria, against his competition and against sales operations in his industry. By the use of this inventory, he

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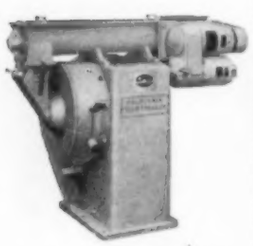
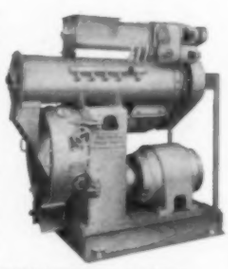


CPM MODEL "50" PELLET MILL
The California economy unit that delivers 1 or more tons per hour, all size pellets and cubes. Often used where steam not available.



CPM "CENTURY" M. P. MIXER-PELLETER
Eliminates the need for separate molasses mixer. All CPM models can be ordered equipped with this molasses mixer at extra cost.

CPM "MASTER" PELLET MILL
The quality engineered pellet mill ideally suited for small capacity plants. A real profit builder long proved in service everywhere.

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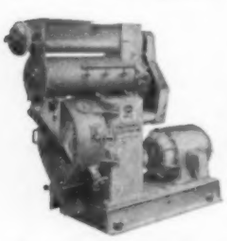
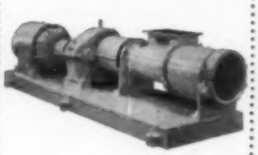
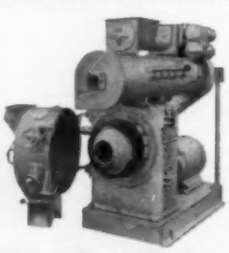


CPM "NYFLO" PELLET MILL
Handles enormous volume for its size in continuous, highly economical operation. Usually equipped with 50 HP direct coupled motor.



CPM "HI-MOLASSES" PELLET MILL
Produces a stronger, firmer, higher quality pellet from high-molasses feeds than has ever been possible before. Full information on request.



CPM "CENTURY" PELLET MILLS
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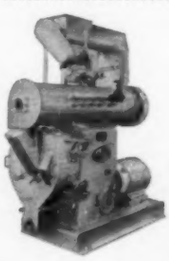

CPM TWO-SPEED PELLET MILL
Designed for greatest efficiency in producing large cattle cubes with slow die speeds, as well as small poultry pellets at high speeds.

From helpful engineering assistance to post-installation servicing and parts, you can count on CALIFORNIA. Call your CPM representative: he's a pelleting specialist well qualified to work with you in the most economical, efficient and profitable solution to your particular needs.

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may pinpoint the corrective measures he needs to take with each man, and he can determine, with great skill and clarity, whether the individual salesman should be retrained, placed under different supervision, given a different method of remuneration, or fired. Here, again, science rather than art assists the sales manager to make maximum utilization of his available manpower.

These are a few suggestions which, if carefully followed and seriously considered, will enable the modern sales manager to develop the kind of sales personnel which will enable him to integrate his field sales operations into the total marketing program. He will be able to utilize more efficiently better men for larger marketing goals.

New Mexico Considers Sales Tax on Feed

SANTA FE, N.M. — Faced with a severe shortage of school funds, the New Mexico legislature will consider extension of sales taxes to feed and farm chemicals.

The Governor's Commission on Educational Finance reports that school costs will run ahead of present revenue sources by about $17 million a year. To narrow the gap, the commission lists a number of "possible revenue sources" including an additional percent on the present 2% "school" sales tax plus elimination of exemptions from the sales tax for sales of livestock, feed, seed, fertilizers, insecticides and farm machinery except tractors.

The commission did not recommend lifting the exemption, but listed it as a possibility. Currently the state wide sales tax of 2% is collected in addition to a 1% tax by some New Mexico cities.

Since the commission has listed a 1% increase in the sales tax in addition to lifting the feed exemption, the tax on feed could go from zero to 3% in rural areas and to 4% in some cities.

N.D. STEAM ROLLER

GRENORA, N.D. — The Farmers Elevator Co. here, recently completed a $53,000 addition including steam roller mill facilities for cattle feed production.

New Arkansas Group

LITTLE ROCK, ARK.—The Little Rock Chamber of Commerce has announced formation of a new organization to work with and serve producers, processors and distributors of Arkansas farm products in a 26-county area in the central part of the state.

L. D. Owen, former manager of the Sugar Creek Creamery at Russellville, has been named manager of the new organization.

Chamber officials estimated that the farm value of poultry products produced in the area amounts to some $26 million annually. They said there are commercial laying flocks in all 26 of the counties, broilers in 20 counties and turkeys in 17.

Build today's most modern feed mill with Butler square tanks... Butler square tanks handle grain, feed ingredients, and feeds with ease. The new square shape provides maximum storage space in a minimum of ground space. All-steel construction reduces insurance rates and maintenance costs. 100% bolted construction speeds erection, eliminates slow, costly welding. Contact your Butler Tank Contractor today for full details. Or write direct.

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Steam, Dry Rolled Barley Compared

A beef feeding trial comparing steam rolled and dry rolled barley has been completed at one of North Dakota's largest feedlots.

Daily gain for the first 67 days averaged 2.97 lb. on the steam rolled barley and 2.53 lb. on the dry rolled barley.

According to The Farmer magazine, two experimental lots of heifers in the Murphy & Murray Feedlot, Reynolds, N.D., were put on the same fattening ration of nothing but straight barley and liquefied supplement. Sixty-one head in each lot averaged 705 lb. at the start. Only difference was that barley was steam rolled for one lot and dry rolled for the other lot. Both lots received the same supplement.

Figures on feed costs and feed efficiency also favored steam-rolling —$16.21 and $19.03 comparative feed costs per cwt. of gain for the respective treatments, and 7.01 and 8.51 lb. of feed required per pound of gain, respectively.

Performance Dropped

A check on performance after 85 days of feeding showed a definite drop in performance for both lots. Steam rolled barley still made the better showing, but both barley rations were way off the pace set the first 67 days of the trial.

Average daily gain dropped to 2.40 lb. (steam rolled) and 2.26 lb. (dry rolled). Feed costs increased to an average of $19.59 and $19.87 per cwt. of gain for steam and dry rolling, respectively.

What happened?

"For one thing, the 85-day weighing was made during the Labor Day weekend when extremely hot weather was unduly severe on all the cattle," Michael F. Murray told The Farmer. "We also attribute a lot of the drop—which we have experienced in all our barley feeds—to insufficient vitamin A. We have fed it since early July at the 10,000 unit level, but now think it should be 15,000 units."

Truer Figures

"I'm inclined to believe the relative position of the trial figures is truer on the 67-day weighing than on the final weighing after 85 days of feeding," explains Mr. Murray. Barley used in the trial was high priced (87¢ bushel) and high quality Red River Valley malting barley. "We hope to try this comparison again, especially to check western North Dakota barley—higher protein, but lower test weight and cost —with just vitamins A and D and minerals added. I expect the feed cost will be less than 14¢ on this ration," says Mr. Murray.

Feed costs in the comparison trial were figured on the basis of $43 per ton of steam-rolled barley and $38.25 per ton of dry-rolled barley, including charges for rolling and delivery.

Because of the vitamin A problem, recently all cattle which had been on the barley 75 days were put back on the usual ration of corn and beet pulp.

Mr. Murray indicated that getting the vitamin A level straightened out probably would solve the problem. In the future, he said, the feedlot will probably feed some nonlegume or very slight amounts of non-legume hay with the steam rolled barley.

Heisdorf & Nelson Announces Appointees

KIRKLAND, WASH. — Gerald Cruea, general manager for Heisdorf & Nelson Farms, Inc., Kirkland, announced that Harry Burton, Riverside, Cal., has been named advertising manager for H&N, replacing Ronnie Roberson, who has resigned to go into business in Missouri.

Other H&N appointments include Howard Appel, formerly manager of the Riverside, Cal., farm, who is now in Cuxhaven, West Germany, managing H&N breeding flocks. Fred Corwin succeeds Mr. Appel as Riverside farm manager.

A new employee at H&N is Robert Bullock, Sanger, Cal., assigned to the Petaluma, Cal., branch as customer serviceman. Mr. Bullock replaces Dave Hodges, Fresno, Cal., who is transferred to manager of Hollywood Hills farm near Kirkland.

Harold Poor will assume the branch manager position at Riverside, being transferred from customer service work in southern and eastern Washington. Dave Miller, recently on the production department staff in the Kirkland office, replaces Mr. Poor as customer serviceman in Washington.

Jack Davies, who since 1955 has been in the acounting department of the Kirkland office, will assume personnel duties at Kirkland.

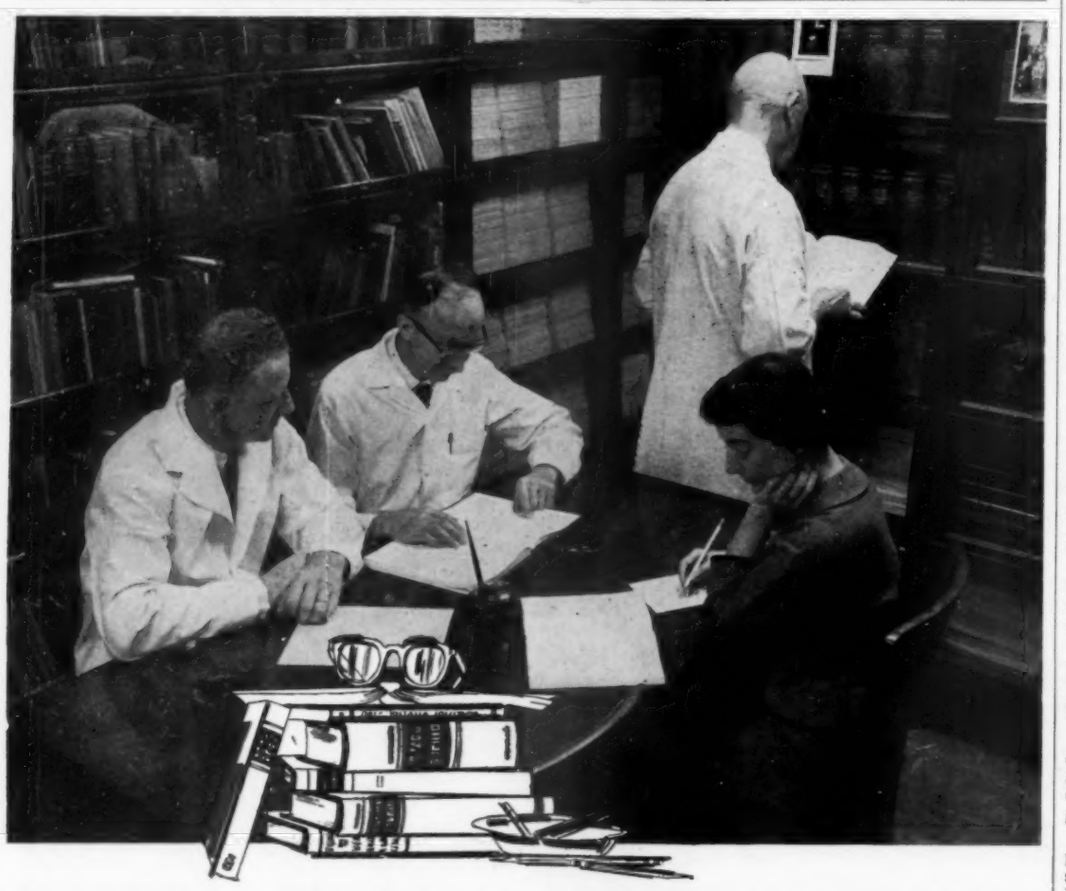
F. H. Peavey & Co. Opens Export Division

MINNEAPOLIS — Establishment of an export department in the grain and milling firm of F. H. Peavey & Co. was announced by Fritz Corrigan, vice president.

General manager of the new department will be Eugene V. N. Bissell, Jr., Chicago. He will join the Peavey organization later in January.

"This is a further move in a program to increase Peavey's export activities," Mr. Corrigan said. "It is our intention to broaden the scope of trading in world markets which we have carried on to a more limited degree in the past through our terminal merchandising division."

The new department will office with the Peavey firm's headquarters in Minneapolis. Mr. Bissell thus returns to the Mineapolis market after a period of approximately six years' merchandising and exporting experience in Norfolk, New York and Chicago.



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. . . **Knowledge** — information gained from research conducted all over the world. Into the Lime Crest Research Laboratory's library come more than 80 periodicals, mostly technical, in the fields of animal and poultry science, nutrition, biochemistry, analytical chemistry and veterinary science. Some of the files cover a period of almost 35 years. This constantly-growing library is one of the best of its kind — if not the best — in the feed industry. It enables the staff of the Lime Crest Research Laboratory to keep informed of the latest developments in the field of animal nutrition — to be familiar with what has been learned in the past as well as with what is being discovered today . . . and **Experience** — Lime Crest's experience gained in making trace-mineral pre-mixes for a period of almost 25 years.

This knowledge and experience is your assurance that Lime Crest Trace-Mineral Pre-Mixes are formulated in accordance with the best information available. If you are not already using a Lime Crest Trace-Mineral Pre-Mix*, write or call us for more information . . . at least, let us send you our latest folder and price list.

**If you want a special pre-mix, we can satisfy your requirements . . . send us your specifications for a prompt quotation.*

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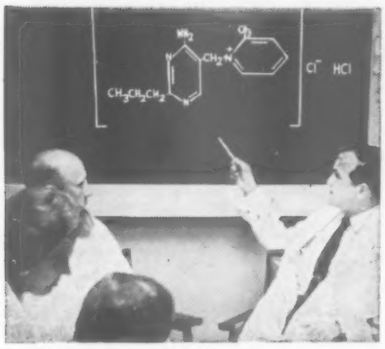

Unique CHEMICAL STRUCTURE *...new type of* ANTICOCCIDIAL ACTIVITY

NOW...FROM THE LEADER IN COCCIDIOSIS RESEARCH

AMPROL...the latest addition to the Merck family of coccidiostats...combines a highly desirable balance of efficacy and safety. Having undergone intensive study and testing under the most advanced methods, it promises to be a truly effective coccidiostat for use in broiler feeds. It is the first coccidiostat evaluated against 44 strains of seven species of coccidia.

UNIQUE ANTICOCCIDIAL ACTION

The chemical structure of AMPROL differs completely from that of any other coccidiostat in the industry's history – it is similar to that of thiamine. At recommended use levels it appears to interfere with the thiamine metabolism of the coccidia, but does *not* affect the normal thiamine metabolism of the chicken, a mode of action entirely different from any other coccidiostat.

SIGNIFICANT COMMERCIAL ADVANTAGES

The value of AMPROL can be measured by its efficacy and its favorable margin of safety...plus the fact that it permits attractive weight gains and feed conversions. Tests to date have not shown any significant ability of coccidia to develop resistance to AMPROL – indicating a most promising role for years to come – in the management of coccidiosis.

EFFICACY

Exhibits important activity against major coccidia – especially *Eimeria tenella* and *E. necatrix,* under a variety of conditions. In laboratory comparisons with mixed infections of cecal and intestinal coccidiosis, AMPROL gave more protection than other coccidiostats.

PRODUCTION PERFORMANCE

Excellent growth and feed efficiency. After a year of experiments against control flocks, under practical commercial-type conditions, broilers on AMPROL showed higher final weights with favorable feed conversions.

CONSISTENT PERFORMANCE

Tested birds were exposed to four consecutive generations of ten virulent strains of *E. tenella* which did not develop significant resistance to AMPROL.

SAFETY

Well tolerated up to four times suggested use-level of 0.0125%. Side effects noted above 0.05% level are specifically related to thiamine-depletion and are quickly reversible, a simple corrective procedure unique with AMPROL. Feeding trials indicate recommended use-levels will not affect egg quality, egg production or hatchability. No toxicity observed when feeds containing AMPROL are fed to other animals.

USE-LEVELS

Recommended use-level for most field conditions is 0.0125%. Where adverse conditions and less sensitive strains of coccidia prevail, use the 0.025% level.

NOW...WITH ANTIBIOTICS

For further information, contact your Merck representative or write to Agricultural Products, Merck Chemical Division, Merck & Co., Inc., Rahway, New Jersey.

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Recent Developments on a Proposed ANRC Vitamin K Reference Standard

By Dr. Henry S. Perdue and
Dr. Douglas V. Frost
Abbott Laboratories
North Chicago, Ill.

At the 1959 ANRC meeting various aspects of the problem of assaying feeds for vitamin K adequacy were discussed. The problems may be broken down into three parts:

1. Selection of a suitable standard of vitamin K activity.
2. Selection of a suitable standard test ration.
3. Means of equating the response to the unknown feed in terms of the standard feed of known vitamin K content.

EDITOR'S NOTE: *This is the concluding article in a series composed of papers presented at the 1960 annual meeting of the Animal Nutrition Research Council in Washington, D.C.*

Last year data bearing on this problem were presented by Dr. M. L. Scott of Cornell, Dr. Paul Griminger of Rutgers, and by the authors from our laboratory. (Feedstuffs, Jan. 9-March 12, 1960.)

TABLE 1. Vitamin K-Deficient Ration Modified from ANRC Reference Broiler Ration—1954

	%
Yellow corn	62.7
Soybean meal, 50% protein	28
Fish solubles, 50% solids	2.5
Dried whey	2.5
Methionine	0.005
Calcium carbonate	1.6
Dicalcium phosphate	1.75
Trace mineral mix	0.1
Vitamin A, stabilized (4,000 I.U./gm.)	0.2
Vitamin D (1,500 I.U./gm.)	0.05
Choline chloride, 25% mix	0.15
	mg./lb.
Riboflavin	1.5
Ca pantothenate	2.5
Niacin	15
Vitamin B_{12}	0.003
Vitamin E acetate	2
Procaine penicillin	2
Arsanilic acid	45

Immediate Objective

It was generally agreed that selection of a standard should be our immediate objective. At that time vitamin K_1 and menadione sodium bisulfite complex (MSBC) appeared the best possibilities. It was recognized, however, that vitamin K_1 has the disadvantages of being unstable to light and somewhat difficult to handle and disperse in feeds. Dr. J. C. Bauernfeind of Hoffmann-La Roche suggested that a gelatin beadlet preparation of vitamin K_1 might get around these difficulties and could be a suitable standard of vitamin K activity.

We have compared Klotogen F with a gelatin beadlet preparation containing 1% of vitamin K_1 as standards of vitamin K activity. The vitamin K_1 beadlets were obtained through the courtesy and cooperation of Dr. Bauernfeind. Data received from Mr. E. De Ritter of Hoffmann-La Roche indicate that the vitamin K_1 beadlets show no loss of vitamin K_1 after 7 months at room temperature or 2 weeks at 113°F. Exposure to light, however, causes rapid discoloration of the surface of the beadlets (private communication).

The menadione sodium bisulfite complex (MSBC) is Klotogen F (Abbott) and contains 63% menadione sodium bisulfite, U.S.P. Stability studies by Harvey S. Miller (control department, Abbott Laboratories) show that this product is stable up to 26 months when kept dry at room temperature. Minor color variation from off-white to tan has not influenced the assay results of many lots tested. When exposed to moisture and elevated temperature, however, MSBC loses sulfur dioxide and changes color markedly. At first there is an apparent increase in menadione content due to loss of sulfur dioxide gas. As degradation continues, however, the assay for menadione falls off. This chain of degradation does not occur when MSBC is properly packaged and

(Turn to VITAMIN K, page 58)

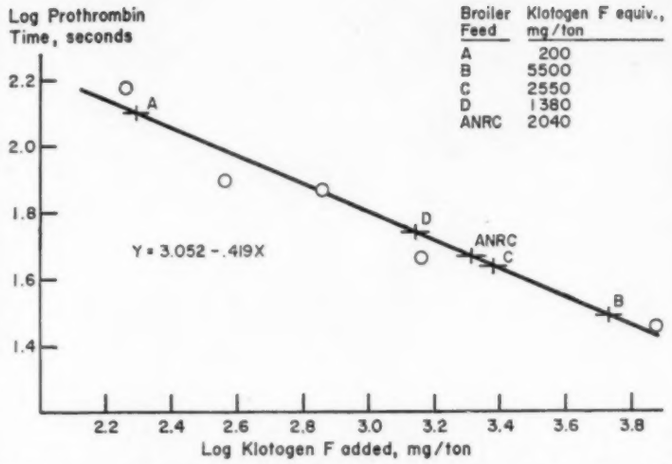

FIGURE 1. Graded Levels of Klotogen F with 0.1% Sulfaquinoxaline. Assay of Four Commercial Broiler Feeds and the Complete ANRC Ration for Vitamin K Activity

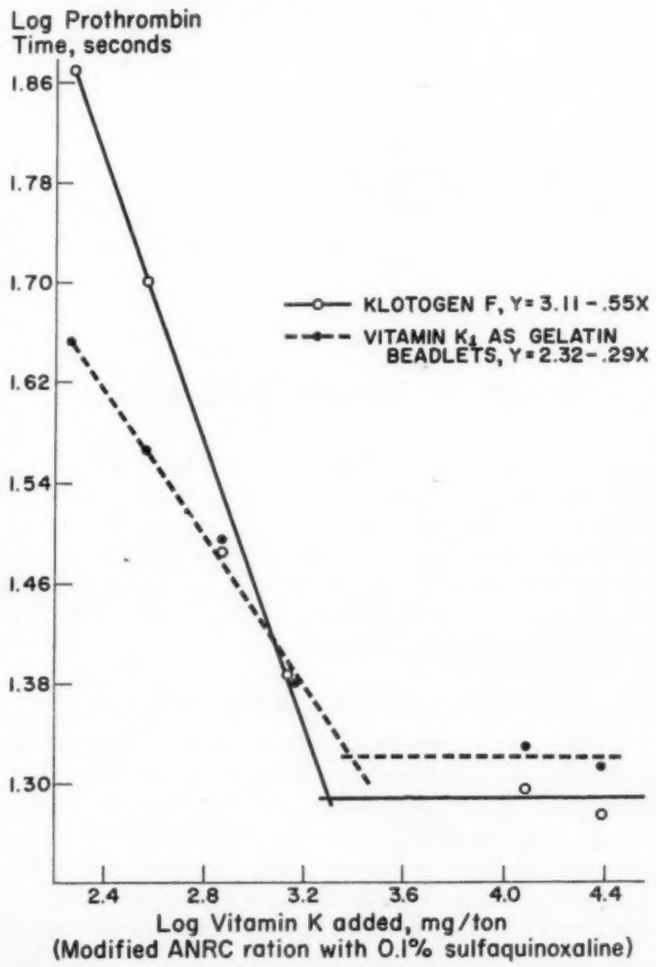
Log Prothrombin Time, seconds
KLOTOGEN F, Y = 3.11 - .55X
VITAMIN K1 AS GELATIN BEADLETS, Y = 2.32 - .29X
Log Vitamin K added, mg/ton
(Modified ANRC ration with 0.1% sulfaquinoxaline)

FIGURE 2. Graded Levels of Klotogen F and Vitamin K_1 as Gelatin Beadlets

TABLE 2. Modified ANRC Ration + 0.1% SQ

Amount added mg./ton	Prothrombin MSBC sec.	Prothrombin Vit. K_1, GB sec.
180	74.8	46.6
360	59.1	37.5
720	31.0	31.1
1,440	24.4	24.1
12,000	19.9	21.4
24,000	18.8	20.8

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Some grain men are moisture tester testers without even knowing it. Most often they're the bargain hunters or gimmick fanciers who always seem to end up with untried and unproven equipment. All too often the things that cost them less to buy end up costing them far more to own.

Instead, we hope that you're the kind of moisture tester tester who finds out all you can about the different brands and models available and makes up your own mind about the one that's best for you.

Try 'em all and we think you'll buy the Steinlite 500-RC. It's the best and newest of the Steinlite line that already is more widely used than all other makes of moisture testers combined.

No need to guess at how the 500-RC will perform . . . it's backed by years of research and offers you a full year's factory guarantee. It performs routine testing automatically in seconds, even makes perfect tests of grain right from the dryer or samples of mixed moisture content . . . no need to wait hours for moisture equalization.

No ifs, ands, or buts about it . . . the new Steinlite 500-RC costs you $495 to buy but it pays for you in one. Write for complete details on this reliable moisture tester and the liberal trade-in allowances being offered for your present equipment.

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NEW PLANT

(Continued from page 47)

more accuracy, are made in batching into the large surge. From the multiple-discharge surge hopper, materials drop into the big 7-ton, 75 h.p. Howes horizontal batch mixer.

Part of the batching and mixing system is a special simultaneously operated system for micro-ingredients. Materials move from small bins (400 to 600 lb.) by four screws and nine Syntron vibrating feeders into a 100-lb. scale, which weighs out the materials in three drafts. These micro-ingredients drop into a 400-lb. Howes horizontal vitamin mixer for blending and then go into the large mixer. In some cases, some micro-ingredients may be dumped directly into the main mixer.

This entire system, including micro-ingredients as well as other ingredients, is controlled with a Hardy electronic weighing and control system. The formulas are set by the quality control manager on peg boards which are checked by the production manager or superintendent before they go to the mixer man in the control room. Accuracy in both the premix and main proportioning systems is automatically controlled within close tolerances, and built-in sequence, timing and other controls in the system assure accuracy.

Liquid addition also is part of the automatic control system. Liquids—fats and fish solubles—are stored in two outside 18,000-gal. tanks, heated with thermostatically controlled outside plate coils and under constant agitation. The liquids are pumped directly from these tanks to the batch mixer, being added after other ingredients are in the mixer.

From the batch mixer, the feed drops into a surge bin and then goes through a high-speed Wenger blender to assure thorough blending of liquids and other ingredients.

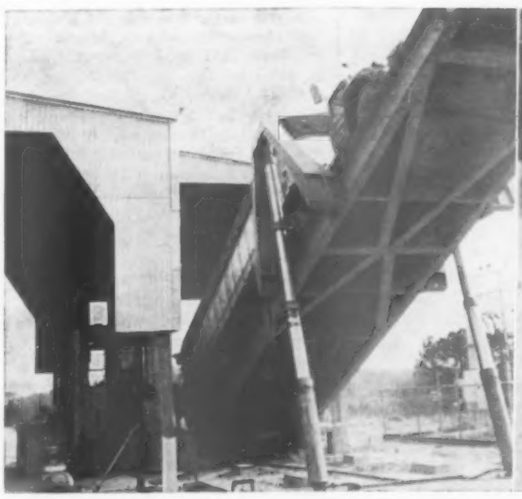
A high-speed Wenger blender, shown here, gives the mixed feed a final blending following mixing in the 7-ton S. Howes batch mixer.

The mixed feed is then elevated, with distribution into pellet, packing or load-out bins controlled by the mixer man.

Pelleting: Pellets are produced on a 100 h.p. Sprout-Waldron unit, with provision made for installation of an additional pellet mill. A Sprout-Waldron vertical cooler in the basement is used for cooling. A slider board belt conveyor moves material to the pellet leg for elevating and scalping.

In crumblizing, a two-break system is used, where the pellets go through one set of rolls in the basement, and the overs get a second break at the top of the mill. A two-break system results in less repelleting and less fines.

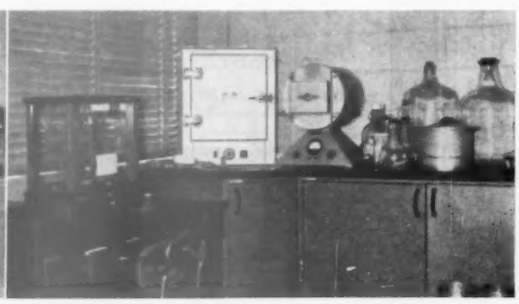
Packing: For packing, feeds are spouted from the packing bins to a unique one-man packing station in the adjoining warehouse. Here one man bags the feed, with the bags moving up an inclined belt and circle around onto the loading table on the left. The same operator puts the bags on pallets and moves them by forklift truck to warehouse storage. A translucent (but not transparent) panel, one of several such panels in the mill, is in the background.



A truck is being unloaded on the 60-ft. hydraulic truck dump. Unloading controls are in the small structure to the left.

Bulk trucks are loaded rapidly by remote control. A truck has just moved onto the 60-ft. scale beneath overhead bins.

The office and shop building at Jasper. The maintenance shops are located in the rear of this steel building.



Quality control is emphasized at the new plant, and here is a picture of part of the mill's modern laboratory.

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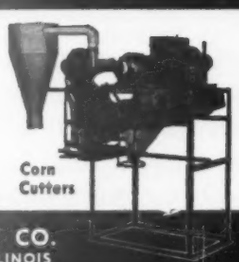


Corn Cutters

CUSTOM MILLERS SUPPLY CO.
BOX 537 MONMOUTH, ILLINOIS
MANUFACTURERS OF QUALITY MILLING EQUIPMENT SINCE 1930

Bill Holcomb, formerly quality control manager and now plant superintendent, in the lab.

George Haefner, plant accounting manager, going over procedures with an office employee.

ling around onto a palletizing table. This same man puts the feed onto pallets and moves the loads by forklift truck to warehouse storage. This one man can pack and handel up to 50 tons per day.

Bulk Load-out: There are 23 bulk load-out bins, five of them with screw conveyors taking the feed out to trucks on the 60-ft. truck scale. The other bins, over the truck scale, discharge directly by gravity through 18 by 18 in. openings with air slide gates into the bulk trucks. The scale dial and remote controls for bin selection and weighing for load-out are inside the mill. A running inventory is kept in a blackboard in the scale room. Twenty tons can be dropped in five mintes.

Quality Control: A laboratory for analysis of both ingredients and finished feeds is located in the office building. A quality control man handles the analysis work and also sets the electronic formula boards. Every bulk load that leaves the plant is inspected by the quality control man.

Buying and Inventory Control: An office in the warehouse building is provided for the superintendent, buyer and procurement expediter. A bin board on the wall is used to keep a running inventory record on ingredients, and also to show what is on track.

Maintenance: Behind the office area in a building separate from the mill building and warehouse is a maintenance shop for the mill and truck repair.

Service: The entire operation, said Mr. Widner, assures the utmost in production efficiency and quality control, plus rapid, specialized service for the specialized area served by this most modern of feed manufacturing plants—in this era of critical, high efficiency formula feeds.

MONTANA PELLET PLANT

FORSYTH, MONT.—A $70,000 pelleting plant to produce feeds for cattle, hogs and poultry is being built here by the Farmers Union GTA. Custom pelleting will be offered.

Dairy Production Will Be Emphasized at Virginia Conference

RICHMOND, VA.—The 1961 Virginia feed convention and nutrition conference scheduled at the Hotel Roanoke, Roanoke, Va., Feb. 28-March 1, will place special emphasis on dairy production on the Wednesday morning, March 1 program.

Paul M. Reaves, Virginia Polytechnic Institute dairy science department, will open the Wednesday program with a talk on "What is Required in the Grain Ration for Milk Production."

Other Wednesday morning speakers are W. S. Griffith, V.P.I. dairy science department on "Prescription Feeding of Dairy Cows;" Dr. M. F. Ellmore, V.P.I. dairy science department on "A Mastitis Prevention and Control Program," and K. E. Loope, V.P.I. agricultural economics department on "The Effect of New Developments on Dairy Management." Preston E. Moyers, Broadway, Va., Virginia State Feed Assn. vice president, will be presiding officer at the Wednesday morning meeting.

Wednesday afternoon's program will be devoted to beef and swine production topics. The Tuesday, Feb. 28, program will be a full day session on poultry topics.

Tuesday evening workshops will be held for poultry, dairy and beef cattle, swine and sheep interests, the last three combined in one session.

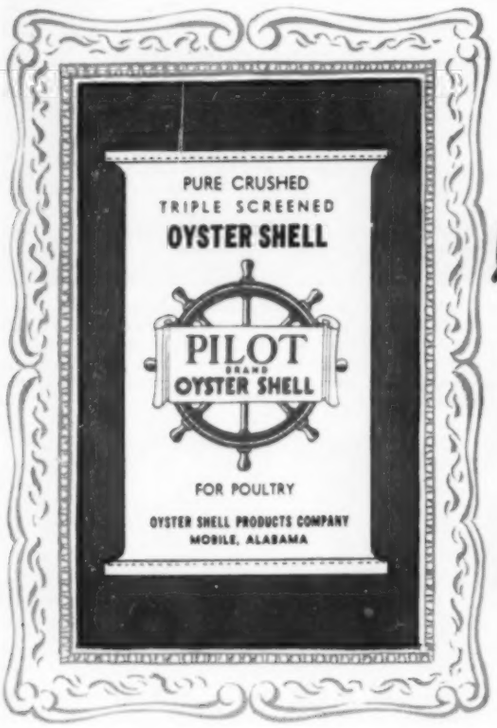
The annual business meeting of the Virginia State Feed Assn. will be held at 4:30 p.m. Feb. 28. New directors of the association will be elected at the business meeting and new officers will be named at a directors meeting immediately following.

Present officers of the association are: W. G. Ritchie, Petersburg, president; Preston Moyers, Broadway, vice president, and R. L. Barnett, Roanoke, secretary-treasurer.

Kellogg Appointments

BATTLE CREEK, MICH.—Three purchasing executives of the Kellogg Co., Battle Creek, have been promoted as a result of recommendations made by the late A. E. Udell, vice president in charge of purchasing, as one of his last official acts before his death Dec. 19.

Norman F. Rabe has been named manager of industrial purchasing; Victor E. Kronemeyer, manager of grain procurement, and Ferris F. Purdy, assistant manager of industrial purchasing.



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FOR POULTRY

Oyster Shell Products Company
Mobile, Alabama

VITAMIN K

(Continued from page 56)

kept dry during storage. Pure Klotogen F, so handled, satisfies the stability needs for a vitamin standard.

For this comparison we have used a modification of the ANRC reference chick and broiler ration, as reported last year (Table 1). To this ration we add 0.1% sulfaquinoxaline. This increases the chicks' need for vitamin K at least six fold and makes possible direct assay of the relative vitamin K adequacy of a manufactured feed. Data reported last year (Fig. 1) illustrate the workability of this assay.

Same Procedure

For the comparison of MSBC and the vitamin K, beadlets we followed the same procedure as that reported earlier. Each group contained 10 cockerels of a Cornish x White Rock breed. The chicks were obtained from a local hatchery and started on their respective rations the day after hatching. They were housed in brooders with raised wire floors. Stainless steel water troughs were washed each day. Prothrombin times were done on whole blood taken from the heart using oxalate as the anticoagulant and chick embryo extract (Difco EE

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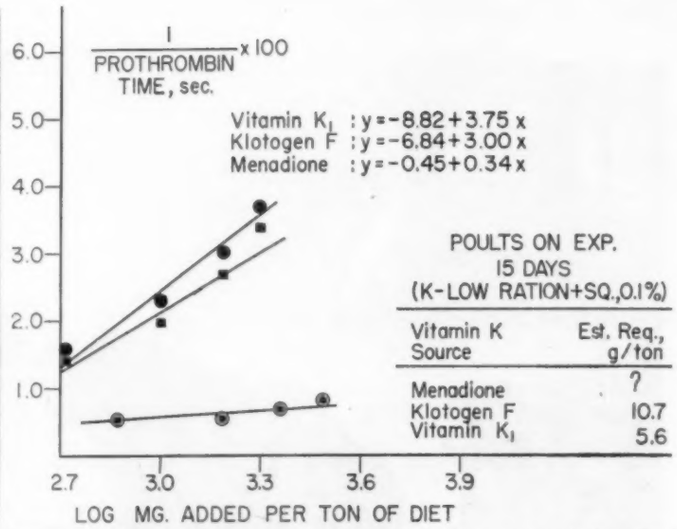

FIGURE 3. Effect of Graded Levels of Vitamin K_1, Klotogen F and Menadione on the Prothrombin Time of Poults

100) as the source of thromboplastin (Frost, et al., 1956, J. Nutrition, 59:181-196).

Adding graded levels of Klotogen F and vitamin K_1 to the modified ANRC ration with 0.1% sulfaquinoxaline (SQ) gave a graded decrease in the chicks whole blood prothrombin time (Table 2). Plotting the logarithm of the prothrombin time in seconds against the logarithm of the amount of added Klotogen F or vitamin K_1 gave a good fit of the regression lines obtained by the least squares method (Fig. 2). In this experiment the line for Klotogen F has a greater slope than the one for vitamin K_1 and plateaus at a slightly lower prothrombin time and feed concentration. Both sources of vitamin K activity appear equally satisfactory so far as their dose-response characteristics are concerned. It appears, therefore, that the selection of one of these substances as a standard of vitamin K activity must rest on properties other than the dose-response relationship.

Characteristics

At the 1959 meeting of the ANRC, Dr. S. R. Ames presented a list of characteristics which he felt any ANRC Reference Standard should have. A modification of this list including those characteristics which are applicable to a standard of vitamin K activity is given in Table 3.

When examined in this way, MSBC seems to have some advantages over vitamin K_1 beadlets as a standard of vitamin K activity. It also has the additional advantage of being the principal synthetic source of vitamin K activity in broiler rations.

The results presented here and those presented last year demonstrate a practical, rapid and economical method of assaying broiler feeds for vitamin K activity. The modified ANRC broiler ration with 0.1% sulfaquinoxaline has worked well in our tests. MSBC appears satisfactory as a standard and has advantages over vitamin K_1 or the gelatin beadlet preparation containing 1% vitamin K_1.

Although we have directed our work on this assay primarily to broiler feeds, it is probably applicable also to feeds for turkeys and pheasants. At the meeting of the Poultry Science Assn. in 1957 we presented data on the vitamin K requirement of turkey poults. These data (Fig. 2) show a graded prothrombin response to additions of MSBC and vitamin K_1 to a ration containing 0.1% SQ. Data recently received from Dr. M. L. Scott of Cornell show a similar response in pheasants when graded levels of sources of vitamin K activity were added (private communication).

The assay method described is a practical and economical way to determine the relative vitamin K adequacy of a poultry ration. If an official method of determining the vitamin K adequacy of poultry feeds is needed, the above method may be recommended for consideration by the Association of Official Agricultural Chemists.

TABLE 3. Standards of Vitamin K Activity

Characteristic	MSBC	Vit. K_1, GB
Known purity	+	+
Chemical analysis	+	+
Stability in feeds	+	?
Easily obtainable	+	?
Biologically active	+	+
Easily mixed in feeds	+	?
Total	6+	3+

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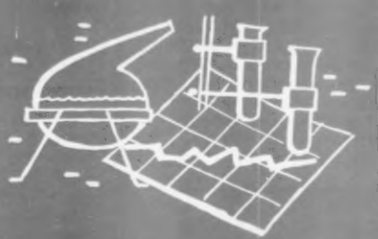

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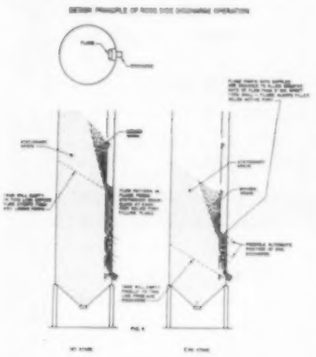
DESCRIPTIONS OF NEW AND IMPROVED PRODUCTS AND SERVICES PROVIDED BY MANUFACTURERS AND SUPPLIERS ARE PRESENTED IN BRIEF FORM. FOR ADDITIONAL INFORMATION, PLEASE USE THE ACCOMPANYING COUPON.

No. 7261—Sidewall Discharge for Grain Tanks

A new device to discharge grain from the sidewall of a deep grain tank has been announced by Ross Equipment Co., division of the William Bayley Co., manufacturer of metal grain tanks, bulk feed tanks and silos.

The new device is designed to prevent tank distortion and possible wall damage by limiting the depth of grain above the discharge point. This minimizes eccentric wall pressures due to the off-center movement of grain inside the tank toward an open sidewall discharge, the company states.

To accomplish this, says the company, a vertical flume is attached to the inside wall of the tank leading to the discharge spout through the tank sidewall. Baffled ports are placed at intervals on the grain side of the flume. Each port allows a greater rate of grain flow into the flume than the rate of flow from the discharge spout. This way, the flume is kept filled with grain from one port only.



The manufacturer also reports that this flume device makes it possible to withdraw grain in successive layers from the top of the tank without disturbing any of the grain below a desired level.

For additional information check No. 7261 on coupon and mail.

No. 7269—Feed Bagger

An improved net weighing bagger for feed and similar products is announced by the Thayer Scale Corp.

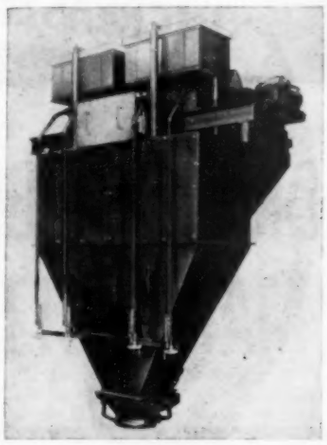
The N18CC automatically portions feed into predetermined charges and delivers the charge to a filler spout.

Typical applications, says the company, include: bagging of dairy feeds, heavy mash, molasses feeds and range feeds.

The 2N18CC is a duplex model consisting of two independent units which are enclosed in a common cabinet and electrically interlocked. Each unit consists of a two-belt bulk and dribble feeder and a weigh hopper supported by a Thayer Flexure-Plate Scale.

The scale has no knife edge pivots or other friction surfaces and is not affected by dust, dirt, moisture or temperature change. Accuracy is guaranteed for millions of weighings, a company release states.

The feeders receive material from supply bin and feed it to the weigh hoppers. When the weigh hopper contains approximately 90% of a full charge, the scale weigh beam position actuates a signal that stops the bulk feed belt. The dribble feed belt dribbles the remaining 10% of the charge to the hopper and the scale weigh beam rises to balance, and actuates a signal that stops the dribble feed. Dribbling the last 10% of the charge permits an accuracy of plus or minus 2 oz., it is reported.



The duplex unit (2N18CC) can fill 100 lb. bags at rates up to 24 bags per minute. For additional information check No. 7269 on the coupon and mail.

No. 7275—Lift Truck Handbook

The Automatic Transportation Co., manufacturer of industrial lift trucks, has compiled a new 80-page "Handbook of Cost Cutting Materials Handling Ideas."

The book contains: discussions of current materials handling problems, giving the pros and cons on such subjects as narrow versus wide aisles, walkies versus rider-type trucks, specials versus standard trucks, pallet versus palletless handling and how to select the right truck for the job.

The book also contains a thesis on how to analyze materials handling; flow charts; truck battery calculator charts for selecting the correct battery, plus case histories of proven cost-cutting truck applications. For a copy of this book check No. 7275 on the coupon and mail.

No. 7271—Belt Splice

Conveyor installations using belts manufactured entirely of an interwoven carcass may now be spliced with a new reversible belt splice that is designed for quick, simple installation, according to announcement by General Splice Corp.

The heavy-duty, hinge-type "Minet" splice eliminates the need for templates, drilling or hole punching, reports the company. Its design permits installation of the splice in one piece. As the conveyor operates, the hinge plate separates into sections at pre-scored notches to conform with conveyor trough curvature.

The one piece design assures closest possible fit resulting in a tight, leakproof, yet flexible point, it is reported.

High strength (up to 60% of belt tensile limit), says the company, is due to the method of fastening which employs pointed rivets which separate, but do not cut and weaken the belt fabric.

The hinge-type splice with heavy-duty, reusable cable pin, can go smoothly around small diameter pulleys and makes adding and removing belt sections a quick, simple operation, it is claimed.

The "Minet" splice is available for belts from 1/32 in. to 1 in. thick and up to 72 in. wide. For additional information check No. 7271 on the coupon and mail.

No. 7277—Round Hog Feeder

The Oakes Manufacturing Co., an operation of the Food Machinery & Chemical Corp., announces the availability of a new, extra heavy gauge steel, round, Super "Big-O" hog feeder.

The new feeder is available in three sizes: 40 bu., 60 bu., and 80 bu. capacities. It features a heavy-duty spun steel base with cone-shaped center that produces positive feed flow to all feeder openings, according to the company.

Twelve large feeder openings have a flanged edge for extra strength and wide-type lips prevent feed loss. New screw type feed control lever is quick and easy to adjust and is located in the dome of the feeder where it is easy to get at, it is claimed.

Hopper angle of the round feeder gives maximum head room to hogs and serves hogs of all sizes. It is mounted on heavy 2 in. by 6 in. skids with metal straps provided for moving. A weather-shield protects feeder openings from rain and makes openings weatherproof, it is reported.

For additional information check No. 7277 on the coupon and mail.

No. 7274—Bad Debt Collection System

A new four-mailing collection series—designed to collect from the slow payers more quickly, with a lower collecting cost than usual—is announced by the collection systems division of Transco Envelope Co.

The new system attempts to speed up the pre-mailing handling flow. It consists of a series of low pressure letters, statements and reminders, reports the company.

One of the handling features is a self-sealing adhesive. The normal flap-wetting routine is completely eliminated. The new adhesive makes

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- ☐ No. 7274—Collection System
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- ☐ No. 7276—Turkey Barn Insulation
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the bottom and top flaps of the envelope stick to each other when pressed lightly together. A second feature is the use of a clear plastic window in the outside envelope, making it unnecessary for the biller to type the debtor's name and address twice.

The first of the four-piece series is a simple statement form. White in color, it provides for a description of the service or merchandise delivered, its price and the amount due.

The second is a green "friendly reminder" note. It again states the amount due and includes the sentence, "We are sure you would like to get this unpaid bill 'off your desk' as soon as possible."

The third piece, yellow in color, holds to the courteous tone of the previous reminders, but is somewhat more forceful. It asks, "May we please hear from you soon?"

The final piece, pink in color, forcefully states, "We have extended you every opportunity to take care of this bill. Your account is now delinquent . . ." and so on.

To go with each of the above is the outgoing mailing envelope with the self-sealing adhesive and plastic address window. For additional information check No. 7274 on the coupon and mail.

No. 7273—Poultry Plant Cleaning Compound

Anderson Box Co. announces the introduction of "Sani-Clean," a new cleaning compound for processing plants and equipment in hatcheries and egg breaking plants.

"Sani-Clean," reports the company, is an all-purpose cleaner containing a new, low sudsing, special wetting

agent DJ-970 which is 100% active. It is specially formulated for maximum penetration to dissolve all grease and residue, yet it is not harmful to hands.

It is shipped in 25 lb. and 100 lb. containers. For additional information check No. 7273 on the coupon and mail.

No. 7276—Turkey Barn Insulation

The American Sisalkraft Co. has described a pole-type turkey barn which includes glass fiber insulation utilized with a special polyethylene coated paper made by the company. The barns, designed for use in northern climates, are said to cost about $1.08 per sq. ft.

The report said that midwestern feed manufacturers are underwriting costs of setting up farmers in the turkey business using the houses. The farmers, aided in obtaining investment money and guaranteed a minimum marketing price, are reported to be able to operate turkey enterprises during cold weather, using heated turkey barns, and compete with producers in other areas.

The turkey barns are basically pole barns to which insulation and the polyethylene coated paper combination are added to compensate for moisture conditions, reflect light and heat inside the building, reduce drafts and add to appearance of the structure. The houses, built on compacted soil, are erected in standard widths of 62 to 88 ft. and in "practically unlimited lengths" of 16 ft. increments.

Pine poles serve as the load-carrying members. Walls are framed to a height of 7 ft. Roof rafters of 2x12 fir are placed on a 4 to 1 pitch. Glass fiber, 2 in. thick, is used with the special paper made by American Sisalkraft to compensate for heating requirements and humidity. The combination consists of a 1½ mil white,

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pigmented film extruded on both sides of a reinforced building paper. It serves as a moisture barrier, keeping moisture from spreading into the insulation and corrugated sheet that forms the outside walls and roof. The white exposed surface reflects light and heat and can be washed down.

The Farmers' Builder, a contracting firm which builds the barns, said inside temperature of 78° can be maintained when outside temperature is —22° with one brooder stove in every other bay. Principal components in the houses are guaranteed for 20 years with normal maintenance.

For further information check No. 7276 on the coupon and mail.

No. 7272—Hardwood Flooring for Trucks

A heavy-duty, laminated hardwood flooring for trucks and trailers, said to offer substantial savings in installation and maintenance, is being marketed by the E. L. Bruce Co.

Made of selected oak, the new flooring utilizes the latest electronic laminating processes and new waterproof glues to provide full trailer or truck-length boards up to 12 in. in width, the company reports.

Shipped pre-cut to buyer's exact specifications, the new flooring is available with shiplap, center-match, or special machining. Extra durability and serviceability are gained with the edge-grain surface, the company states.

Cutting, matching and joining random-length boards over stringers is eliminated, along with waste from cuttings and numerous extra bolts. Installation is performed in a fraction of the time required to install an ordinary floor, the company claims.

For additional information check No. 7272 on the coupon and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jottmg the appropriate number of the coupon and forwarding it to Feedstuffs.

No. 7207 — Poultry medications, Vineland Poultry Laboratories

No. 7208—Bird repellent, Seedburo Equipment Co.

No. 7209 — No-Spill Device, The Frank G. Hough Co.

No. 7210 — Combination bag, Raymond Bag Corp.

No. 7211—Grain roller mill, Roskamp Huller Manufacturing Co., Inc.

No. 7212—Dog food flavor, Flavor Corporation of America.

No. 7213 — Mineral mixes, Corn King Co.

No. 7214—Bulk truck, Productive Acres Mfg. Co.

No. 7215—Turkey disease bulletin, Dr. Salsbury's Laboratories.

No. 7216 — Bag closure tape, The West Virginia Pulp & Paper Co.

No. 7217—Enclosed vibrating conveyor, The Cleveland Vibrator Co.

No. 7218—Poultry breeding bulletin, Indiana Farm Bureau Cooperative Assn.

No. 7219—Pox vaccine bulletin, The American Scientific Laboratories, Inc.

No. 7220—Rodenticide, Ferret Laboratories.

No. 7221—Bulk pneumatic trailer, Heil Co.

No. 7222—Dry form of antioxidant, Monsanto Chemical Co.

No. 7223 — Safety training course, National Safety Council.

No. 7224 — Automatic conveyor scale, Ramsey Engineering Co.

No. 7225—Mobile milling training, Seco, Inc.

No. 7226—Rotary feeder, Fuller Co.

No. 7227—Attrition mills, Sprout, Waldron & Co., Inc.

No. 7228—New equipment leasing plan, Nationwide Leasing Co.

No. 7229—New mixer, The J. H. Day Co.

No. 7230—Bulk feed bodies, Gaddis Bros. Mfg. Co.

No. 7231—Cattle oiler, Piel Mfg. Co., Inc.

No. 7232—Double agitator mixers, Sprout, Waldron & Co., Inc.

No. 7233—Impact mill, Sturtevant Mill Co.

No. 7234 — Bench scales, Exact Weight Scale Co.

No. 7235—Ingredient analysis table, Nopco Chemical Co.

No. 7236—Grain storage system, Dunbar Kapple Division of DK Mfg. Co.

No. 7237—Feed service franchise, Swisher Feed Service.

No. 7239—Molasses mixing equipment, Prater Pulverizer Co.

No. 7240—Bag filling machine, Kraft Bag Corp.

No. 7242—Pneumatic vibratory feeder, National Air Vibrator Co.

No. 7244—Hot spot grain fumigant, Ferguson Fumigants, Inc.

No. 7245—Roller mills for mobile mill, Champion Portable Mill Co.

No. 7249—Iron for sheep and cattle, Diamond Laboratories.

No. 7250 — Bin vibrators, Eriez Manufacturing Co.

No. 7251 — Grain temperature probe, Rolfes Electronic Corp.

No. 7252—Automatic calf feeder, K & K Manufacturing, Inc.

No. 7253—Air vibrator, National Air Vibrator Co.

No. 7254 — Pneumatic conveyors, Young Machinery Co.

No. 7255 — Checkweighing scale, Exact Weight Scale Co.

No. 7256—Fertilizer spreader, Tyler Manufacturing Co.

No. 7257 — Enzyme feed supplements, Rohm & Haas Co.

No. 7258 — Phosphorus report, Smith-Douglass Co.

No. 7259—Cut-off control for scales, The Cardinal Scale Manufacturing Co.

No. 7260—Boiler catalog, Superior Boiler Works.

No. 7262—Grain driers, Aeroglide Corp.

No. 7263—Compact trucks and tractors, White Motor Co.

No. 7264—Steam generator, Clayton Manufacturing Co.

No. 7265—Self-feeder for cattle, The Brower Manufacturing Co.

No. 7266—Iron for pigs, Specifide, Inc.

No. 7267—Round nursery pens, The Walsh Manufacturing Co.

No. 7268—Plastic bag handle, Union Bag-Camp Paper Corp.

Hog-Barley Ratio Told

WINNIPEG, ONT.—The Canadian hog-barley ratio was subject to relatively small variations during the August-October period of 1960, with rising costs for feed barley accompanied by both rising and declining returns from hogs, it is reported.

The price of a bushel of feed barley, basis No. 1 feed in store, Ft. William-Port Arthur, increased from a monthly average of 96¾¢ in July to 98½¢ in August, 99⅛¢ in September, and $1.04 in October, it is reported.

At the same time, hog prices moved only from a monthly average of $23.84 cwt. in July to $23.82 cwt. in August; then increased to $25.37 cwt. in September only to decrease to $24.10 cwt. in October when the premium on B-1 hogs was discontinued.

It's Important That All Feed Merchants Have Full Details On New Methods That Will Increase Profits From Their Feed

GRAN-I-GRIT Research

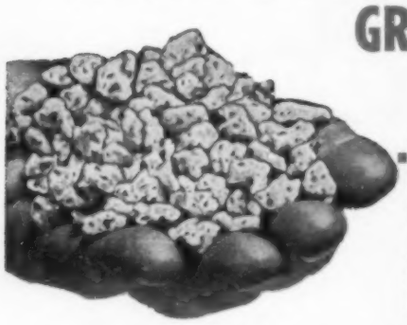
First Pioneered and Proved that Feeding Larger Sizes of Grit Would Increase Profits

Daily results on the farms of Egg Producers, Broiler Growers and Turkey Raisers are proving that ALL THREE get better results from feed by using GRAN-I-GRIT'S New Grit Feeding Program of feeding larger sizes of grit.

LARGER SIZES OF GRIT, instead of passing through the digestive tract like small grit, stay IN and work in the gizzard.

LARGER SIZES OF GRIT not only grind feed finer and more efficiently in the gizzard but keep the digestive tract open for full feed utilization by completely grinding feathers and fibrous litter that all birds eat.

By informing your customers of GRAN-I-GRIT'S New Grit Feeding Program you can show them HOW TO MAKE MORE MONEY FROM YOUR FEED, which in turn will stimulate your sales and profits.



GRAN-I-GRIT IS BEST WITH EYE APPEAL

Chicks, poults, broilers, layers or turkeys must consume the proper amount of grit to get maximum results from feed and Grit Must Have Eye Appeal before they will eat it.

Side by side tests on poultry farms and by leading poultry authorities have proven that poultry of all ages prefer a light gray grit with black specks . . . the GRAN-I-GRIT TYPE . . . (as much as 10, 15, 20 to one) over grit of other colors.

We have a new GRAN-I-GRIT circular that gives full details on the New GRAN-I-GRIT Program of feeding larger sizes of grit . . . the Program that is proving so successful today. Fill out the coupon today for a Free copy of this circular.

GRAN-I-GRIT is packed in 80, 50 and 25 lb. multiwall paper bags and in 10 lb. Self Feeding Packs that save valuable storage space.

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Member of Granite Grit Institute of America
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Kindly mail us at once your New Circular on your New Program of Feeding Larger Sizes of Grit

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THE GRIT WITH THE SHARPEST GRINDING EDGES EVER CUT

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W-W ROLLER MILLS
HAMMER MILLS
W-W GRINDER CORP.
2757 No. Market, Dept. 311
Wichita 19, Kansas

The egg that laid an egg

This turkey egg didn't hatch. It was the hen's 40th egg.

To the turkey raiser this is one less poult, that much less profit potential. He should know that when a turkey hen's reserve of vitamin E runs low during the laying season, few eggs hatch. In one group of hens on a *practical type* diet the sharpest drop in hatchability came just after the 40th egg.

Hens on the same ration plus high levels of vitamin E zoomed right past the difficult forties with no drop-off in poult production.*

It's no trick at all to minimize the after-40 risk in a turkey breeder ration. Fifty cents buys enough *Myvamix*® *Vitamin E* to fortify to a level of 5 International Units per pound the ration to feed 300 hens for a week.

This is less than the value of one poult. If during the week just one egg hatches that wouldn't have hatched otherwise, the *Myvamix* will have paid for itself.

It's cheap insurance, any way you look at it. If you'd like a little closer look, write to ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • Charles Albert Smith Limited, Montreal and Toronto.

*Project No. 715, Washington Agricultural Experiment Stations, Department of Poultry Science, State College of Washington, (*Poultry Science*, 36, 1344 (1957))

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FACTORS

(Continued from page 39)

gredients used in formula feeds. Rock phosphate is a common feed material with physical properties considerably different than most organic ingredients (see Table 1). Figure 4-A shows recovery of rock phosphate tracer similar in size to the carrier. The distribution pattern was sufficiently different from the expected recovery to indicate non-random distribution. A more marked segregation was observed with tracer particles smaller than carrier particles. Contrary to results obtained with tracers of soybean oil meal, this segregation persisted when runs were made with first 10% and then 30% of the carrier replaced by a filler composed of intermediate sized particles (Figures 4-C and 4-D).

It is suggested by these data that differences in physical properties together with particle size contributed to the observed segregation pattern. An attempt was made to alter the surface of the carrier to provide more friction (increase the roughness index (8) among particles). A mixture of standard carrier plus 1% vegetable oil mixed with small particle tracer developed a distribution pattern (Figure 4-E) which, except for the last sample, showed little evidence of non-random mixing. The L.S.D. (least significant difference) value indicates that only the mean of the runs of the last sample appeared to be from a population of means different from that the first nine samples. Hence, the addition of vegetable oil to carrier aided considerably in retarding segregation.

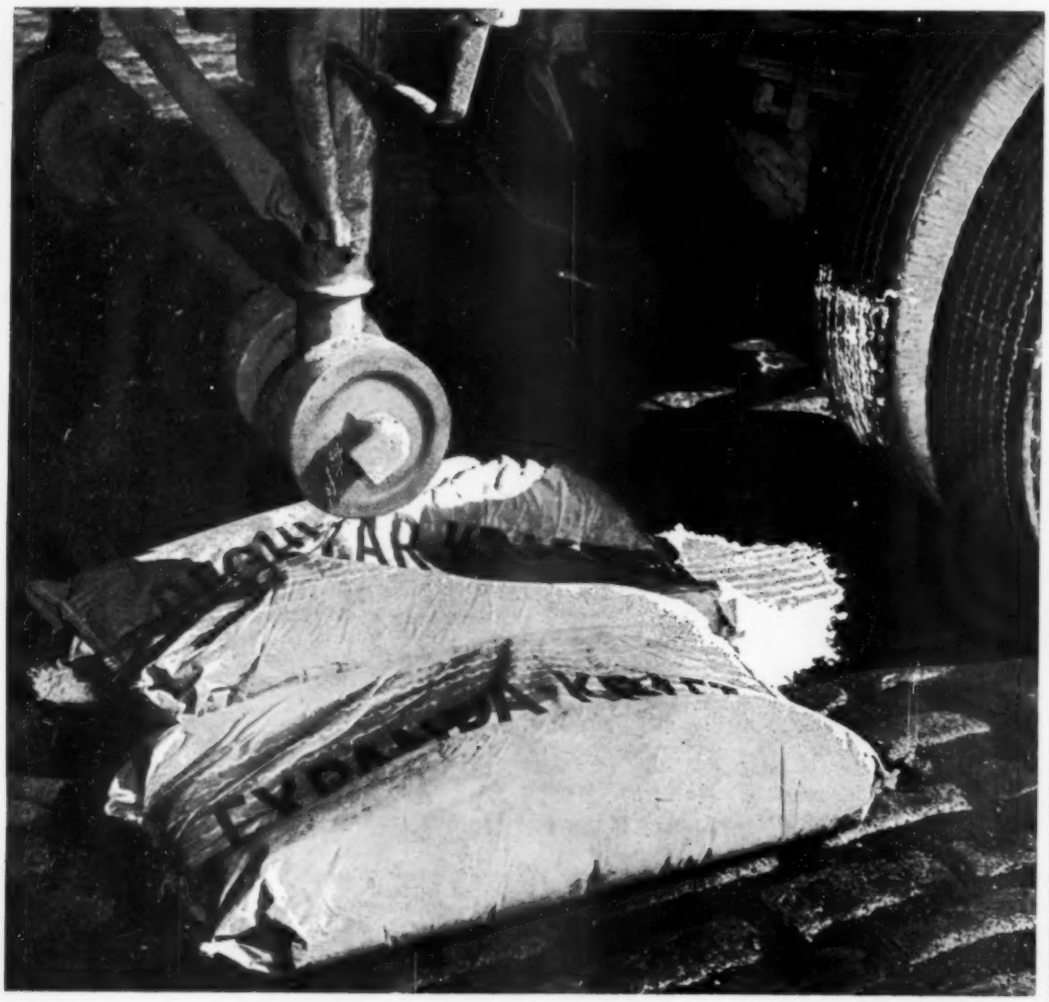
Distribution of Di-calcium Phosphate—Di-calcium phosphate is a manufactured chemical of high true density but due to its granulation, its bulk density is nearly that of soybean oil meal. The recovery of this additive similar in size to the carrier is shown in Figure 5-A. Statistically, the distribution is characterized by a nonsignificant F-value for which $P < 0.15$, which means that there is no pattern of non-random segregation. Figure 5-B shows the recovery of this compound when smaller than the carrier in size. A segregation tendency is noted similar to that observed in the blending of other tracers of small particle size. The replacement of 30% carrier of intermediate particle size corrected the non-random pattern of small di-calcium phosphate particle, much as it did with soybean oil meal tracer.

Distribution of Beet Pulp—Beet pulp is an organic ingredient, similar in true density to soybean oil meal but less than half its bulk density, with a higher angle of repose (Table 1). Figure 6-A illustrates the distribution of beet pulp tracer similar size to the carrier. It is observed that the recovery of this material and rock phosphate of the same size as carrier represent approximate symmetrical images about the expected value, a phenomenon which possibly may be explained by their extremes in bulk density.

Results obtained using beet pulp tracer smaller than carrier particles may be observed in Figure 6-B. The typical pattern of distribution of small particles is apparent. No attempt was made to correct this by replacing carrier with finer particles or the addition of oil.

CONCLUSIONS—A small quantity of additive of the same size and approximately the same bulk density as the carrier was recovered after mixing and sampling with no clear-cut evidence to indicate non-randomness. Additives considerably smaller in size than carrier segregated during the mixing and discharge processes and appeared in high concentration during the first part of the sampling sequence. Partial replacement of standard carrier with material of intermediate size between carrier and additive were effective in preventing segregation of small particles of the same bulk density as the carrier but was less effective with additives of higher density.

Particle size and density are important factors influencing segregation of materials in feed mixtures. Another factor which seems to affect segregation is friction between particles. When friction was increased by the addition of vegetable oil to the



One bag broke . . . the other has two-way stretch

The one with stretch is made of H&W's new, high-strength Expanda Kraft.

A large tractor-trailer ran over both bags of equal weight and plies. The regular kraft bag burst under pressure—see the tell-tale flour on the inside tire tread. But look at Expanda Kraft —*not a sign of breakage!*

Expanda Kraft is stronger, because it's made by a special roll-crepe process. It's resilient, has two-way stretch, and soaks up shock. And Expanda Kraft is available in white, semi-bleached and natural.

Expanda Kraft comes in 40, 50, 60, 70, 80 and 100-pound basis weights. *For samples and information*, write Hollingsworth & Whitney, Division of Scott Paper Company, Chester, Pa.

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Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

carrier, segregation of high density particles mixed with this material, was retarded.

v v

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ACKNOWLEDGEMENT

Sprout, Waldron & Co. contributed to the support of this research through the Sprout-Waldron Foundation.

Figures 1-6 are used by permission of the Feed Production School, Inc., and first appeared in the 1960 Transcript of Proceedings.

Set Zinc Metabolism Research at Clemson

CLEMSON, S.C.—A $30,000 grant from the National Institutes of Health to conduct research with zinc metabolism has been received by Clemson College. The work will be conducted in the department of food technology and human nutrition and poultry department, according to Dr. J. H. Mitchell, Jr., and Dr. B. D. Barnett, department heads, respectively.

A three-year research study will be conducted by Dr. Jane Lease of the department of food technology and human nutrition and Dr. D. E. Turk of the poultry department in an attempt to obtain information on the precise role of zinc in nutrition and the reasons for some of the effects produced by a deficiency of this element.

Little or no information is available on these matters at present, although it has been established that the amount required is affected by the nature of the diet, it was stated.

The research will help to establish basic facts concerning the availability of zinc in human and animal diets and the effects seen when it is lacking.

Grain States' Sales Post to A. J. Kuncl

OAKSHADE, OHIO — A. Joseph Kuncl, Jr., of Ames, Iowa, recently joined Grain States, Eastern Division, Inc. of Oakshade, Ohio, according to announcement by William A. Gauntt, president of the Ohio firm.

A. J. Kuncl, Jr.

Mr. Kuncl has assumed the duties of western regional sales manager and will operate out of Ames. Mr. Kuncl is a graduate of the University of Nebraska. Until his recent change, he was associated with Hess & Clark as a feed medication specialist, having been with that company for the past 7½ years.

His new duties include directing sales in a seven state area and taking over the duties of feed consultant for Grain States' feed manufacturing customers in the area.

Buy and Sell
through
WANT ADS
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FEEDSTUFFS

Fund Hike for Testing

CONCORD, N.H. — The New Hampshire Agricultural Conference, composed of 16 leading farm organizations in the state, has asked for an increase from $16,000 to $25,000 in the state's feed and fertilizer testing program.

The conference also called for an appropriation of $15,000 for each of the next two years to support poultry diagnostic work at the University of New Hampshire in Durham, and voted unanimously for continuation of the state's milk control law.

GARDEN SUPPLY MANAGER

MINNEAPOLIS—Hugh R. Slugg has been appointed manager of the new Minneapolis office of W. G. Slugg Seed & Fertilizer, Inc., Milwaukee, Wis. Mr. Slugg, who will service garden supply dealers in Minnesota and the surrounding market area, has been establishing and servicing garden centers in Wisconsin, Michigan and Illinois for 15 years.

PELLETED POULTRY MANURE—Pictured here is one of 11 truckloads of pelleted fertilizer used in establishing a heavy turf for tees, fairways and greens on the new 106-acre golf course at the Tropicana Country Club, Las Vegas, Nev. At far left is Ben Jaffe, president of the club, and Bert Stamps, architect and turf consultant, Fresno, Cal. Mr. Stamps designed the course and specified the pelleted fertilizer. Known as "White Feather" Poultry Guana, the pelleted fertilizer, also available in crumbled form, was introduced last spring by the American Poultry Guano Corp., Upland, Cal.

You build nutrition into your feeds

—let Tenox keep it there!

As a feed manufacturer, you take great pains to be sure the product leaving your plant possesses the proper nutritional value. But how long it will *retain* its full value, depends to a great extent on the stability of the fats in it.

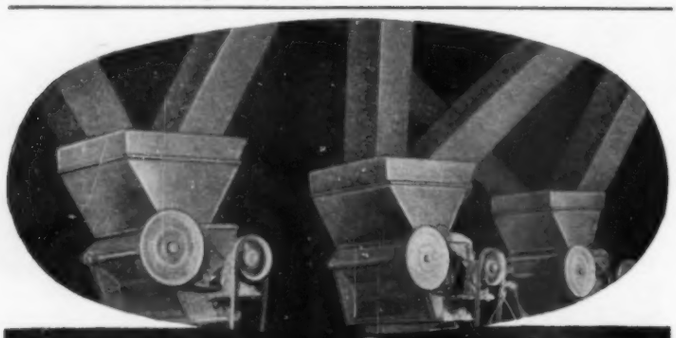
With the wide variety of inedible fats and meat scraps processed by renderers today, it is more important than ever that greases, tallows and meat meal be stabilized with a Tenox antioxidant. By protecting fats against rancidity, Tenox helps preserve the nutritional value and vitamin content of the feed. At the same time, Tenox helps prevent the development of off-flavor and bad odor, keeping the feed fresh and palatable during storage.

In recommending Tenox to your renderer, you can be sure of receiving fats and meat meal of maximum stability. As the leading supplier of food-grade antioxidants, Eastman offers users the widest range available. Our long experience enables us to suggest not only effective and reliable formulations, but also the most efficient method of adding them.

If your renderer is not already using Tenox, tell him you want the protection of these effective antioxidants. Tenox is your best guarantee that your fat-containing feeds will retain their nutritional value—and customers. EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

Tenox

Eastman food-grade antioxidants



PACAL Boralloy-350 STEEL SHEETS
SUPER STRENGTH • LONGER LIFE • LESS WEIGHT

New Boralloy 350 is made with Boron to achieve a Brinnel hardness of 350. It resists corrosion, abrasion and can be cold formed, drilled, and welded as any other steel. Yet Boralloy's superior structural strength make it economical material for almost any milling application and is equally serviceable in both wet and dry use.

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4. Increased Palatability and Appetite Appeal • 5. Other Important Factors
FOR ALL CATTLE, HOGS, SHEEP, CHICKENS, TURKEYS
Yeast Culture Values Proven by State College Tests
Write DIAMOND V MILLS, INC. • Cedar Rapids, Iowa

Laying Hen Protein Requirement Shown To Exceed 15%

CARBONDALE, ILL.—Studies at the Southern Illinois University poultry research center here indicate the protein requirement for laying hens is more than 15%.

According to Scott Hinners, associate professor, animal industries department, trials have been completed covering a range of protein levels from 11 to 19% using a practical corn-soybean oil meal ration supplemented to meet NRC requirements regarding minerals and vitamins. Hens were kept in individual cages.

Although the group on a 17% protein diet gave satisfactory results, the 19% group produced more eggs, especially during hot weather. This indicates egg producers might consider increasing protein in rations during hot weather when feed consumption is generally depressed because of lower energy needs, Mr. Hinners commented.

Egg size tended to increase with increasing protein levels. The addition of 3% fat tended to improve, whereas the addition of 6% fat depressed egg production. Egg quality, measured in Haugh units, was decreased with increasing protein levels, the researcher said.

Further investigation is under way covering a range of protein levels from 15 to 23%. Although not completed, early results indicate a need for at least 17% protein. Feed efficiency was quite high, one group on 17% protein diet having a feed conversion of 3.13 lb. of feed per dozen eggs, the Southern Illinois University staff member said.

U.S.-CANADIAN TRANSACTION

PRESTON, ONT. — The Graham Metal Products, Ltd., is now a Canadian branch of the James Manufacturing Co., Ft. Atkinson, Wis., a subsidiary of Rockwood & Co., it is reported. James Manufacturing Co. produces power choring equipment for the farm, a complete line of equipment for poultry, hogs, dairy cattle and other livestock, as well as milking equipment and stainless steel bulk milk tank coolers. Manufacturing will continue at Preston, Ont. Additional acreage has already been purchased for future expansion.

TURKEY SHOW—Prize winning exhibit at the Far West Turkey Show, Turlock, Cal., featured Commercial Solvents Corp.'s Baciferm, zinc bacitracin antibiotic feed supplement. Here, holding the trophy for the "Best Commercial Exhibit" is I. Roy Cohen, manager, animal nutrition department, Commercial Solvents Corp.

Warehouse Group Names W. Sanderson

MOBILE, ALA.—Walter R. Sanderson, director, grain warehouse division, Missouri Department of Agriculture, was named president of the National Assn. of State Licensed Warehouse Departments at the association's 22nd annual meeting in Mobile, Ala.

W. Sanderson

E. Preston Bailey, supervisor, grain warehouse department, Nebraska Railway Commission, is the retiring president. Mr. Bailey for 12 years served in the association as secretary and treasurer.

Other officers elected were, first vice president, Rufin Guidroz, Louisiana State Warehouse Commission, Baton Rouge; second vice president, Bill Fitzpatrick, warehouse division, Iowa Commerce Commission, Des Moines; and secretary-treasurer, Everett W. Green, grain warehouse department, Nebraska Railway Commission, Lincoln.

Committee chairmen selected include, executive committee, Rufin Guidroz; legislative committee, Ray J. Cornay, director, Louisiana Warehouse Commission, Baton Rouge; publicity, Larry Robinson, warehouse commissioner, Oklahoma City; program, James Wood, field supervisor, Georgia warehouse division, Atlanta; historian, Georgell Douglas, warehouse examiner, Kansas State Grain Inspection department, Topeka, and research, E. Preston Bailey.

The 1961 convention will meet Dec. 6-8 in Atlanta, Ga.

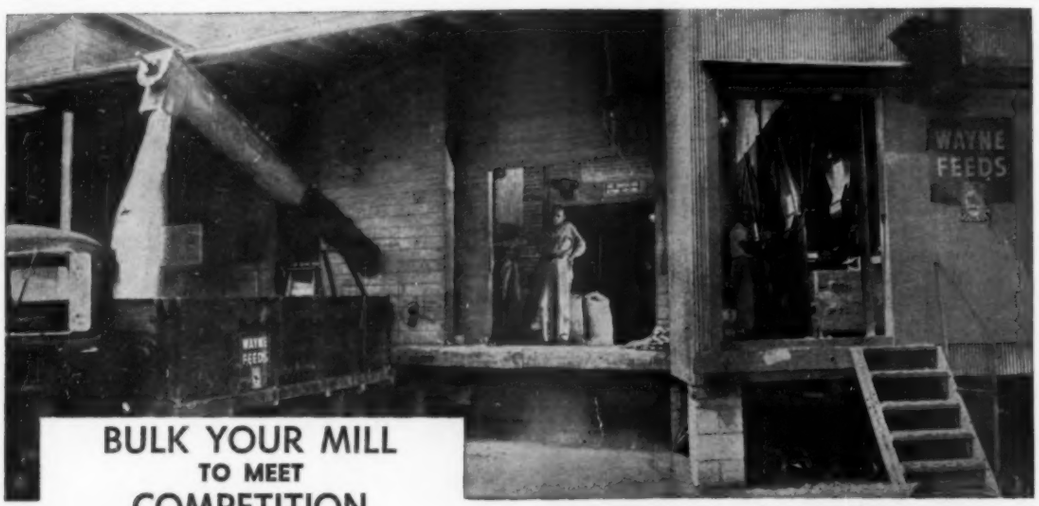
Ag Biochemist Dies

ST. PAUL—Dr. William F. Geddes, chief of the department of agricultural biochemistry, University of Minnesota, St. Paul, and editor of the AACC's research journal, Cereal Chemistry, died recently in Mexico City while on vacation.

Dr. and Mrs. Geddes arrived in Mexico City Dec. 31 for a proposed month's trip through the country. The day following his arrival, he was hospitalized and remained there until his death. He was 64 years old.

PUSHBUTTON MILL

BLAIRSBURG, IOWA—The Farmers Cooperative Elevator Co. here recently completely a $100,000 pushbutton feed mill constructed by Northwest Steel Corp., Ft. Dodge, Iowa. It features remote control grinding and mixing of feed.



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TO MEET
COMPETITION
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This feed man found it easy to BULK his mill with three 5-ton single compartment Lemanco bins used for concentrates which are wheeled by weigh buggy to mixer and augered directly into customers' trucks. Your mill may not be as easy to BULK as this one but the LEMANCO SYSTEM of feed mill bins with common wall construction and minimum 60° slopes for both inside and outside installation, will aid your change to BULK with minimum expense and time.
Use the LEMANCO SYSTEM to become competitive. Your equipment dealer can supply additional information, or write or telephone direct.

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Changes in Arkansas Feed Regulations

LITTLE ROCK—A number of changes in feed regulations adopted by the Arkansas State Plant Board have been announced by Henry DeSalvo, head, Feed, Fertilizer & Pesticide Division.

Regulation No. 1 has been changed to delete detailed reference to inspection fees as such is now in Regulation No. 4. That portion of Regulation No. 1 now contains only information stating that persons or firms engaging in custom mixing register with the board.

The invoice labeling requirements were expanded to provide for drug labeling in custom mixes. Such invoices are to be in duplicate and a copy given to the final purchaser at time of delivery and the remaining copy retained by the custom mixer for inspection purposes.

Regulation No. 1 changes also provide for labeling for lots rather than each bag of custom mix feed left in stock with the name and address of the final purchaser for whom such was prepared.

Regulation No. 4 has been changed to reflect the recent exemption of contract feeds, as defined, from the requirements of the feed law and inspection fees and to specify feeding stuffs which are subject, according to Mr. DeSalvo.

Paragraphs 1-3 have been replaced by paragraphs 1-4, which are as follows:

1. Each manufacturer, jobber or agent shall forward a notarized tonnage report to the plant board on forms furnished by the plant board not later than 30 days after the end of each quarter. Such report shall include the tonnages of the following feeds and be accompanied by an inspection fee equal to 10¢ per ton: (a) all concentrated commercial feeding stuffs, except contract feeds as herein defined and ingredients supplied by the final purchaser for use in custom mixed feed; (b) purchased ingredients used in compounding contract feeds except those exempted in Section 2 of the feed law.

CONTRACT FEED DEFINED—"Contract feeds" are those feeds owned solely by a manufacturer or feed mixer which are distributed under a written contractual agreement to a feeder for the specific purpose of feeding animals or poultry owned solely by such manufacturer or feed mixer.

2. Quarters shall end Sept. 30, Dec. 31, March 31 and June 30 of each year. Reports sent later than 30 days after the end of any quarter, as evidenced by the postmark date, shall be accompanied by a doubled inspection fee of 20¢ per ton. A notarized report shall be submitted each quarter even though no feeds are sold and/or no inspection fees are due.

3. Any person or dealer in Arkansas buying from a trucker who does not have an invoice, bill of sale or delivery receipt showing that the inspection fee has been paid, must report this tonnage quarterly and pay the inspection fees due.

4. A jobber, shipper or manufacturer outside of Arkansas who sells feed at the dock for delivery, distribution or use in this state shall keep accurate records for reporting the tonnage and paying the inspection fees thereon.

$50,000 FIRE LOSS

ABINGDON, VA.—The Light Mill, a milling concern, was heavily damaged by fire recently. Roy Light, owner, said the blaze was "probably caused from an overheated motor in the basement." He added that the grinding and milling portions of the $100,000 building were destroyed, along with some stocks of grain and milled flour. He estimated loss at $50,000.

Bulk Grain Facilities On Missouri River Up

KANSAS CITY — The number of bulk grain facilities on the Missouri River has increased at a rapid rate during the last year, according to a report from the transportation department of the Board of Trade of Kansas City.

The transportation department said that there are now 20 such facilities in existence or under construction. Kansas City has five. Omaha is right behind with four and Nebraska City, Neb., has three. Other cities with one facility each include Sioux City; Plattsmouth, Neb.; Brownville, Neb.; St. Joseph, Mo.; Atchison, Kansas; Waverly, Kansas, and Glasgow, Mo.

Kansas City leads the list in outbound grain and grain products shipments with 680,000 tons in 1960. Omaha shipped 290,000 tons, according to the transportation department.

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For almost half a century, this proven milk replacer has been cutting calf feeding costs almost in half. One pound, plus a gallon of whole milk. Specially milled for finer texture, reinforced with Antibiotics and essential Vitamins, it makes an excellent gruel-type milk replacer. Rock-bottom priced to give you a full mark-up and bring customers back for more. Let us explain our attractive deal.

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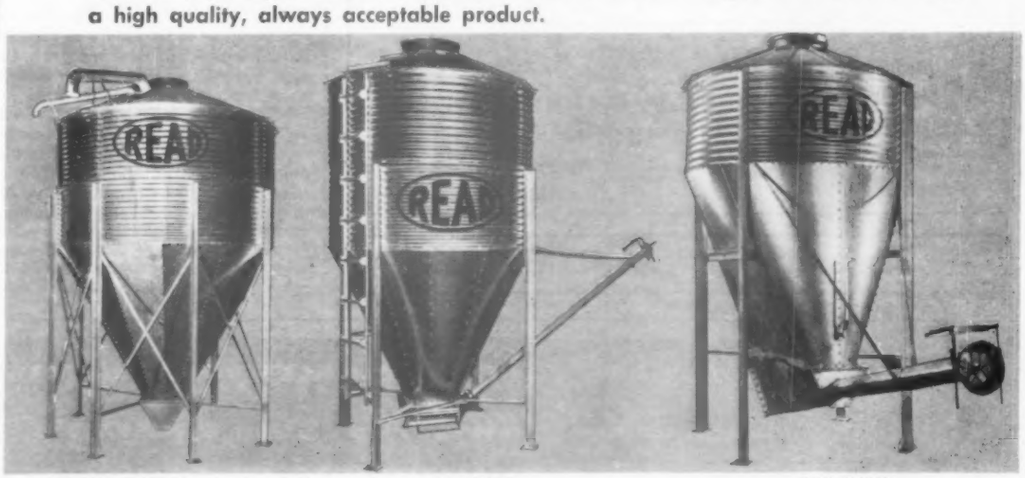
READ Products are designed and engineered to give years of trouble free performance, speed production, reduce costs, and build customer goodwill by furnishing a high quality, always acceptable product.



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Hopper slope lessens bridging
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Discharge hopper has two straight sides and two 60° sides, obround 18" x 84" discharge opening. The combined slope of sides and 1442 square inch discharge facilitates the flow of "hard to handle" bulk feed.

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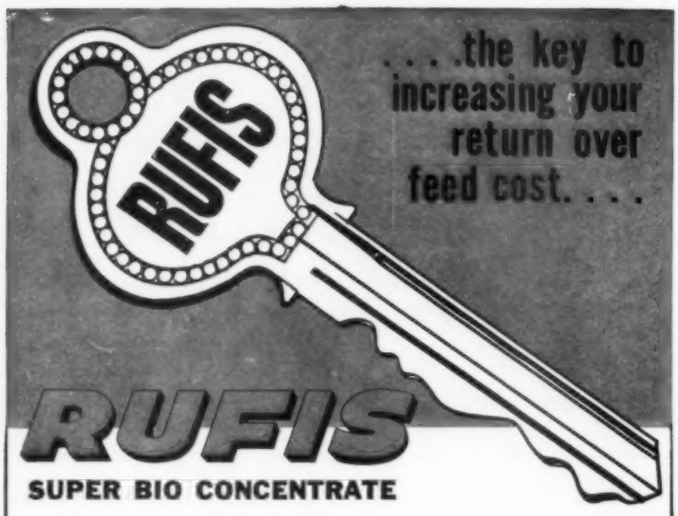

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SELLIN' SAM — By Jim Zilverberg

"Now let's remember this is a New Year's Party, not a feed dealers' convention."

Off-Center Yolk an Optical Illusion

ATHENS, GA. — A large market egg producer in Georgia was recently having a problem with his eggs. His eggs were of consistent high quality on a broken out basis but before a candling light it appeared that the yolk was in the small end of the egg.

After considerable study, Dewey McNiece and Dr. Kenneth May of the University of Georgia poultry department determined that the appearance before a candling light was an optical illusion. The two poultrymen said this was apparently caused by some physical quality of the eggs which caused a peculiar refraction of the light rays.

The hens in this instance had been in lay for about nine months when the poultryman was informed that many of his eggs had yolks which were very much off center. According to Mr. McNiece the situation might have started before since an underlit type grader was used up to that time.

It was stated that the eggs were broken out and appeared to be at least Grade "A" quality. This posed a problem as the egg market purchased eggs on a quality basis determined by candling and 10-15% of the eggs appeared to be of "B" or "C" quality under the candling light. Yet, these eggs were of consistent high quality when broken out.

Dr. May and Mr. McNiece said that a hole was cut through the shell and shell membranes so that the yolk was visible. When this was done it was noted that the yolk was well centered although the yolk shadow was cast in the small end of the egg.

The two Georgia poultrymen say that tests have been conducted in the laboratory in an attempt to determine the cause of this condition, but actual causative factor or factors for this condition have not as yet been isolated.

Cargill Appointment

MINNEAPOLIS — Richard Longeway, formerly grain merchant for Cargill, Inc. in Portland, Ore., has been named manager of the firm's branch office in Cedar Rapids, Iowa. He replaces W. Dart Smith, who will retire Jan. 31.

The changes were announced at the company's headquarters here, by Walter B. Saunders, grain division vice president.

FEED FIRM OPENS

KIESTER, MINN. — The Kiester Feed Service is now open for business, according to Leo Mattson, owner.

INCREASE YOUR FEED SALES AND PROFITS with *Automation!* SELL BROWER'S NEW AUTOMATIC HOG FEEDERS

- Increase equipment sales and profits . . . develop new customers . . . serve more customers in less time.
- Specifically designed for bulk feed set-ups . . . bulk tank capacities from 4 to 11 tons.

A Size and Set-Up to Fit Any Need

Available in packaged set-ups in capacities from 80 to 500 hogs, using either rectangular or round feeders. Custom installations available for any capacities to meet your customers' requirements. Bulk tanks hold from 4 to 11 tons. Automatic, dependable operation. Feed flows into hopper (A) from bulk tank and is carried into feeder by auger (B). Holes in tube allow feed to drop into feeder. When feeder is filled, switch (C) stops motor. When more feed is needed, switch starts auger running again.

BROWER'S new Automatic Feeding System offers your customers the most efficient method yet devised to get faster, more profitable gains with a minimum of time and labor! Once the bulk tank is filled, the Brower Auger takes over all the work — a sales natural for you!

You also make more profit through bigger volume sales to your bulk customers; lower your overhead costs; provide more efficient customer service; have more time to develop new business.

Brower's Automatic Feeder never forgets . . . never neglects . . . keeps each feed hole filled 24 hours a day without supervision. Completely automatic — no time switch . . . no manual on-off switch. Timid pigs get their chance at a full trough . . . all hogs eat more . . . make faster, more profitable gains. Easy and economical to install . . . designed and engineered to last for years. Feed Lot Automation using the BROWER System is the key to **extra** profits for both the feed dealer and the hog raiser!

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Every feed dealer should have this booklet. Gives plans, drawings and complete specifications for automatic hog feeding systems. Send today . . no obligation.

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Canadian Feed Supply Level Is Adequate

OTTAWA—Canada's present supply of feed is adequate, and no changes of any consequence are anticipated, according to announcement by the Dominion Bureau of Statistics.

Feed grains: Gross supplies of Canadian feed grains, excluding wheat in 1960-61 are estimated at 20.1 million tons, 2% lower than last year's 20.6 million, but 3% higher than the 10-year average of 19.5 million.

Net supplies (gross supplies less estimated exports, seed requirements and other domestic uses) are estimated to be 17.0 million tons. This is 1% lower than the 1959-60 total of 17.1 million but 11% higher than the 10-year average of 15.3 million tons.

Although net supplies are slightly smaller than a year ago, this decline is more than offset by a 7% decrease in grain consuming animal units, and as a result, the net supply of feed grains per grain-consuming animal unit is estimated at 1.04 tons, 7% above the 1959-60 level of 0.97 tons and about 3% more than the 10-year average. Grain consumed per grain-consuming animal unit has averaged about 0.83 tons over the 10 years.

Forage crops and feed supplements: Fodder supplies for the present crop year are of record proportions.

Mill feeds and high protein supplements: Supplies of millfeeds available to Canadian feeders are expected to show little change from a year ago. Production of soybean oil meal, which accounts for some 45% of all high-protein supplements used by Canadian feeders, will likely be about the same this year as in 1959-60.

Supplies of other oil meals are expected to be somewhat higher than those of last year. Packinghouse by-products, reflecting a smaller hog slaughter, may register a slight decline.

Oilseed Group to Hear California Economist

WASHINGTON—J. Howard Craven, senior economist at the Bank of America, San Francisco, will be the main speaker at the annual convention of the National Institute of Oilseed Products at the Ojai Valley Inn, Ojai, Cal., Jan. 26-28, B. T. Rocca, Jr., NIOP president, announced.

Mr. Rocca of the Pacific Vegetable Oil Corp., San Francisco, said that approximately 150 NIOP members and their wives have already registered to attend the business session at which Mr. Craven will discuss international finance problems as seen by his own banking institution.

Various phases of the world and U.S. fats and oil pictures will be discussed by two men from the U.S. Department of Agriculture in Washington—Walter W. Sikes, director of the fats and oils division in USDA's Foreign Agricultural Service, and James E. Thigpen, director of the oils and peanut division in USDA's Commodity Stabilization Service.

OHIO EXPANSION

MOUNT GILEAD, OHIO — The Morrow County Farm Bureau Cooperative here now has in operation a new feed mill, store and farm machinery building development including an 80x50 ft. steel building, housing general offices and store and a 50x100 ft. pole type structure.

St. Regis Paper Sales Post to W. S. Doolan

NEW YORK—St. Regis Paper Co. announces that William S. Doolan has been appointed district sales manager of the newly-created south Atlantic district of the bag division.

This district includes Georgia, South Carolina, western North Carolina and eastern Tennessee. It is part of the bag division's over-all southeastern regional organization which is under the direction of John B. Brent, regional sales manager, with headquarters in Birmingham, Ala.

Mr. Doolan has been associated with chemical packaging in management and sales management posts since 1950. In his new position, he will maintain his functions on behalf of the chemical packaging division and continue to make his headquarters in Savannah.

J. J. Weldon will continue as bag division sales representative at Atlanta and will report to Mr. Doolan.

TO THE FEED MANUFACTURER ON HIS WAY UP

The Ultra-Life Program makes it easier.

Step up your tonnage, pep up your feed formulas, and improve your results on the farm in 1961. The Ultra-Life Program can help you expand profits and help you on the way up this year.

Ultra-Life leads the industry in products and services to independent feed manufacturers. Our 25 years of experience in providing vitamin and trace mineral fortification to feed manufacturers can help your business to grow in '61.

For complete details, write, wire or phone us today! Ask about "The Ultra-Life Program".

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Main Office and Plant — East St. Louis, Illinois
One of the country's oldest and largest manufacturers of vitamin and trace mineral products.

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. . . ideally suited for BREEDERS, too

Whitmoyer CARB-O-SEP

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There is no blackhead preventive more ideally suited to the turkey breeder's requirements than CARB-O-SEP.

CARB-O-SEP has the unique ability to give top blackhead protection — without introducing the serious, undesirable side reactions breeders have long associated with the use of blackhead preventives. CARB-O-SEP's freedom from costly adverse side reactions has been convincingly proven in both meat birds and breeding birds.

CARB-O-SEP protected meat birds have attained outstanding results in feed efficiency and weight gains. Breeding birds fed CARB-O-SEP have maintained the finest kind of performance records in fertility and hatchability.

Over the past 4 breeding seasons, CARB-O-SEP has been successfully used by breeders all over the country. "84% hatchability" is the most recent report on breeder hatchability.

So—it is no longer necessary for the breeder to run the risk of blackhead striking his valuable breeding birds. CARB-O-SEP offers the turkey breeder an effective way to successfully protect his birds from blackhead without sacrificing valuable fertility and hatchability.

For more information and data on CARB-O-SEP, write Dept. FS-1.

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In 19 official tests ending in 1960, H & N had 24 entries against a total of 520 competing entries. See how H & N compares:

✶ ALBUMEN QUALITY...

H & N averaged 80.1 Haugh Unit value . . . tops over all competitors!

✶ PRODUCTION...

H & N's average hen-housed production was 14 eggs per hen more than the average of *all* competitors.

✶ LIVABILITY...

H & N lived better! They averaged 90.4% hen-housed livability—3.1% better than average of all competitors.

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21c more per hen housed than the average of all 520 competing entries.

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H & N Leghorns not only produced 12 more eggs per hen, they did it on an average of .14 pounds less feed per dozen!

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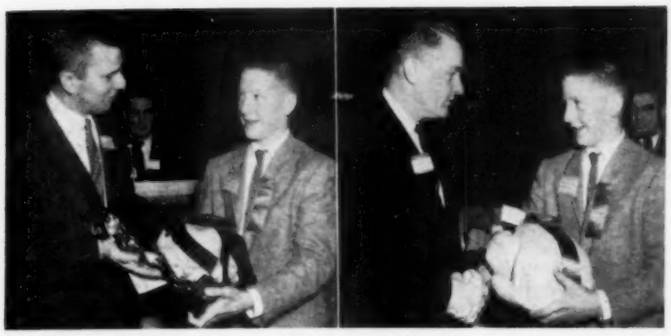


CONGRATULATIONS!—Robert Ash, Ashkum, Ill., reserve champion in the junior division of the National Dressed Turkey Show, is congratulated during the National Turkey Federation convention in Chicago by D. W. Jacobsmeyer (first picture), Ralston Purina Co., St. Louis, and by Tom W. Graham, (second picture), Allied Mills, Inc., Chicago. Young Ash won 14 major ribbons in various classes of the show.

Emergency Areas in Utah and Idaho Told

WASHINGTON—The U.S. Department of Agriculture has designated Wasatch County, Utah, and Franklin County, Idaho, as emergency areas where farmers and ranchers may buy government-owned feed grains at current support prices.

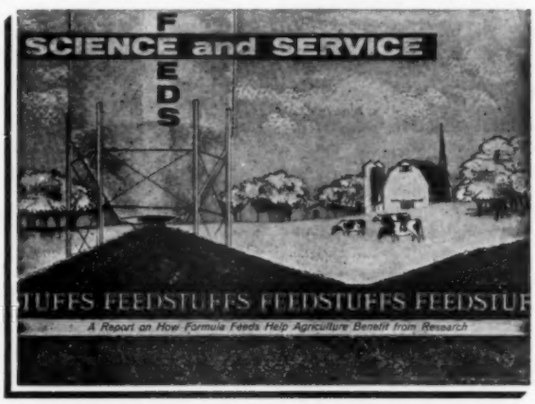
The two counties had a severe drouth last summer, reducing feed grain and hay supplies and limiting range forage, making them eligible for assistance from this date through March 31, 1961.

Commodity Credit Corp.-owned feed grains, as available, will be offered for sale in the counties.

In all, 122 counties or parishes in nine states are currently designated under the livestock feed program. The designated areas now include: 34 counties in Mississippi, 18 parishes in Louisiana, 11 counties in Wyoming, seven in South Dakota, 24 in Utah, six in Wisconsin, six in Nevada, 11 in Michigan, one and parts of two others in Idaho, and parts of two in Arizona.

Legislation authorizes the secretary of agriculture to sell feed grains owned by the CCC at current support prices to provide feed for livestock where he determines there is an emergency area as defined by law.

Here's an easy way for you to make bigger sales to better customers . . .



In this 16 page booklet your customers and prospects will find a practical "short course" on the formula feed business. Give *Science and Service* imprinted with your name to your customers and prospective customers. Tell feeders, educators, businessmen and others about progress in animal agriculture and the feed industry. You'll be providing them with up-to-date information and ideas on such subjects as . . .

Broiler Feeding	Turkey Feeding	New Research Developments
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***Science and Service* is a summary of special Golden Year articles in observance of American Feed Manufacturers Association 50th anniversary. Twelve outstanding feed authorities contributed to the reports which appeared in Feedstuffs during the past year and from which this booklet was compiled.**

A limited number of reprints of* Science and Service *are available now at a single copy price of 50¢. Larger numbers available at quantity prices, ranging downward from 35¢ each for 10 to 100, 25¢ each for 100, to 10¢ each for 1,000. Imprinting a three line company signature on back page of quantities over 100—$7 minimum. Inquire about additional quantity discounts.

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Report Increase in Long-Term Leasing

CHICAGO — Long-term leasing of production and office equipment by milling and feed producers increased during 1960. Value of equipment leased during the year was $10.6 million, a gain of 135% over 1959, it is reported.

Robert Sheridan, president of Nationwide Leasing Co., Chicago, said in a year-end statement that equipment leased by all industry last year totaled $530 million. This was the first time leasing topped the half-billion mark. He predicted that leasing volume would reach $1 billion a year by 1962.

Mr. Sheridan said there were "four major reasons for the rapid growth of equipment leasing in the milling and feed industries: (1) increased popularity of sale-leaseback transactions involving existing plant, (2) more equipment manufacturers have introduced lease plans for their products, (3) money remains tight, as evidenced by a 13% decline in corporate liquidity in the industry during the year, and (4) greater use of the open-end 'master lease' under which companies can expand their leasing as the need for additional equipment arises."

Study Geese Raising

NOXAPATER, MISS.—Dr. Jan A. Bata and daughter, Mrs. Ludmilla Bata Arambasic, flew from Sao Paulo, Brazil, S.A., to Noxapater recently to visit the Farmers Feed & Milling Co. and the Covington goose farm.

W. R. Covington, operator of the mill and farm, had been corresponding with the South Americans since they answered one of his advertisements some time ago.

Dr. Bata and his daughter were seeking information about the raising of geese.

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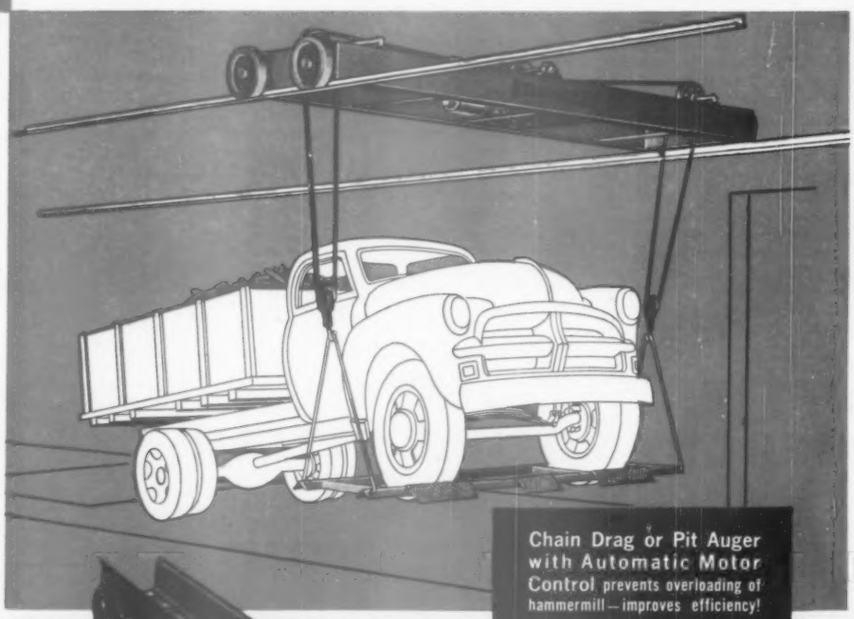

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single and double chain drags

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Chain Drag or Pit Auger with Automatic Motor Control prevents overloading of hammermill—improves efficiency!

Control connects to both hammermill motor and feeder motor. If hammermill motor shows overload from excessively rapid feeding—the motor on the feeder automatically stops until load passes—then automatically starts again.

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Yes, I'm interested in KELLY DUPLEX machinery. Without obligation, please send me complete information on the items checked.

☐ Information on free mill planning and layout service.

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FEEDSTUFFS

What to Do About the Agricultural Outlook?

- **The "Leaders" and "Followers" Among Farmers**
- **The Dynamic and Static Concept of the Family Farm**
- **The Differential Pinch of the Cost-Price Squeeze**
- **Possible Adjustments and Farm Policy**

By Dr. Herrell F. DeGraff
Cornell University

EDITOR'S NOTE: This aricle deals with agricultural problems and policy generally—not just as related to animal agriculture. However, it should be considered as must reading for feed men and others concerned with agriculture and industries serving it. The varied problems are stated concisely, and comments and suggestions on policies and possible solutions to farm problems are presented. Feed men will be interested in the remarks by this distinguished observer and may wish to call the commentary to the attention of others. The article is from a talk at the National Agricultural Outlook Conference held by the U.S. Department of Agriculture. Dr. DeGraff is Babcock professor of food economics in the department of biochemistry and nutrition, Cornell University, Ithaca, N.Y.

If I understand the agricultural outlook, it centers on two points:

(1) Vast accumulated stocks of important farm commodities for which we do not at present have an obvious and remunerative disposal outlet; (2) the cost-price squeeze as it bears upon farm families. In short, we are looking at "the farm problem," at how you who have leadership responsibilities are to counsel farm families, at how farm families who are our mutual interest are to respond to the complex circumstances which now surround them. Like yourselves, I wish I had satisfactory answers to these knotty questions.

I do not even know how to state "the farm problem"—because it is by no means a single problem. It is many and interrelated problems, which affect individual farm families in different ways and in differing degree.

It is not just a cost-price squeeze, because some farmers are not squeezed. It is not merely a low-income problem, because some farmers' incomes are not low. It is not only a question of overproduction, because quantities produced have meaning, in this sense, only in relation to prices and income—and again some farmers are doing very well with prices and incomes at present levels. Similarly, it is not simply a lack of market comparable to agriculture's propensity to produce, for reasons that follow precisely the same logic. Nor is the farm problem only the technological maelstrom in which agriculture is living, because some farmers have stayed abreast of the technology and have used it very much to their advantage. "The farm problem" is all these things, and more, as they have affected individual farm families adversely.

I would like to comment briefly on three points that seem to me to be fundamental to our question of what to do about the agricultural outlook. These are: (1) the "leaders" and the "followers" among farmers; (2) the dynamic and the static concept of the family farm, and (3) the differential pinch of the cost-price squeeze.

1. LEADERS AND FOLLOWERS—It is an extreme oversimplification to speak of only two groups of farmers in our present situation. The opposite ends on any scale might be as black and white, but even so, there is every shade of gray between them. Fully recognizing this fact, I shall, for simplicity, speak for a moment in terms of two groups. At one extreme are farmers and ranchers who have brought their operations into reasonably close adjustment with the best of present technology. The more outstanding farms and ranches in this group are quite adequately equipped with advanced types of power and tools adapted to their needs, with land resources sufficient to use their equipment economically, and with a level of management talent fully capable of combining high-cost production factors into large volume output at low cost per unit.

This segment of agriculture operates out on the growth points of advancing production methods and declining unit costs. Such farmers may well be designated as the "leaders" in application of technology—in production methods which increase both quantity and quality of yield and reduce unit costs of production to levels startlingly lower than other farmers who have adjusted in lesser degree to present technological potentials.

These "leaders" are setting a pace of competition that large numbers of less-adjusted operators are increasingly unable to meet. In every crop and livestock, leading producers with low-unit costs obtain a larger net return from a unit of production than do the high-cost "followers." And this is true regardless of what the market price may be.

Attractive Margin

Even with today's ratio of prices paid to prices received, many "leaders" are being encouraged to expand their volume of production. They are expanding not because of any perverse supply response, but because it is profitable for them to do so. Their own unit-costs leave them an attractive margin of net earnings from the market prices they are receiving. Thus their net earnings encourage them to expand. In consequence, these "leaders" are putting an increasing volume of product in the market—a volume too large to permit the "followers" to obtain sufficient price to offset their higher level of unit costs.

The differential adjustment to technology (differential opportunity and response to it) which these circumstances reflect is the very heart of the farm income problem. Never in history have our farm units and the families on them been all alike. But in recent decades, and with each passing year, the farms and the farmers have become more and more unlike.

In the 1954 census of agriculture, there were 1.29 million farms which produced and sold 79% of all farm products. This 27% of farms (as counted by the census) thus had roughly 80% of agriculture's gross income, and probably not much less of total net income from farming. Calculated in this manner, this group of farm families had aggregate returns from their labor and capital which not only kept them on their farms but also encouraged them further to invest and expand and become still more effective producers.

As the total number of farms in the country has declined, both the number and the proportion of these more-effective farmers have been increasing. Measured by constant prices the proportion of farm families having gross sales of $10,000 and more increased from 5.3% in 1929 to 18.8% in 1954. The number increased from 252,000 in 1929, to 312,000 in 1939, to 494,000 in 1949 and to 853,000 in 1954. (Sales volume in all cases was measured in 1954 prices.) Both the number and proportion will be significantly higher in the 1959 census. I checked the figures for five states among those available from the 1959 census returns (New York, Maryland, Iowa, Minnesota and Colorado). In 1954, 22.7% of the farms in these five states had gross sales of $10,000 or more. For 1959, the figure was 35.2%. In other words, a great deal of technological adjustment has been taking place on farms—apparently considerably more than has been widely recognized. Even with today's obvious and serious cost pressures, most farm families with $10,000 of gross sales are certainly not more economically depressed than my neighbor who works at an industrial job for $100 a week of take-home pay.

Problems Differ

The farm income problem is concentrated among two million other farm families (1954 count) who operate their farms with commercial intent but with very little commercial success. This low-end two million (43%) sold only 19% of total farm production, and probably had an even smaller fraction of net farm income. Their income problem indeed is serious. But it is true also that almost every aspect of their problems differs from the problems of the highly commercial, more highly productive leadership group of farmers.

What should national policy be? The public interest is, beyond question, an adequate continuing supply of desired and appropriate food and fiber. The word "continuing" needs no definition. The words "desired" and "appropriate" may involve elements of honest difference of opinion. But whatever public expenditure is required to meet the "continuing" and "adequacy" requirements is certainly an appropriate charge to society. Equally certain is that even such words and phrasing as this open up many queestions of interpretation and value judgment.

I may as well add to the complexities with the next question. In order to insure a place in the market with sufficiently high prices to cover the unadjusted "followers," should the "leaders" be penalized and restrained from their potentials of volume and efficiency, at the cost of an increasing burden on the public in either taxes or sharply higher food bills? Or, should the economic distress of the "followers" be attacked in some manner that does not penalize the rising efficiency and decreasing unit costs of the "leaders"? These questions are a lot easier to ask than to answer.

2. CONCEPT OF FAMILY FARM—I am quite certain that all among

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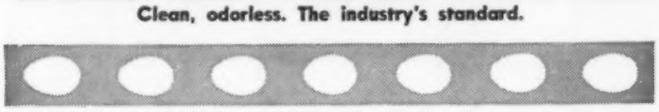

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us are interested in the perpetuation of the family farm, and wish to see policies followed which lead in that direction. There is no more firmly grounded sociological concept than the family farm in this country's prevalent scale of values. Any difference in view about the family farm centers on what it is. Some persons apparently see it as essentially a static institution, while others view it in a dynamic setting. Modern technology, especially in its mechanical applications, has enormously multiplied the number of acres and units of livestock that can be handled by one farm worker. Moreover, a farmer cannot pay going wages, or earn a comparable net for his own work, unless he is reasonably equipped with modern power units and the tools to use with them. Acquisition of the tools requires that they be used a sufficient number of days per year to justify their cost—otherwise the farmer has merely equipped himself out of part of his job, incurred unjustified costs, and become underemployed.

Thus improved tools require a larger farm unit even to keep the family labor force employed. Also the resultant larger size farm requires a higher order of management talent for its successful operation.

This is the dynamic view of the family farm. It means, inevitably, fewer farms, fewer workers employed on farms, new and much larger capital outlays—and new opportunity for the farm family who is able to adjust in this direction. Families who have been able to make such adjustments have been moving toward comparable income opportunity with non-farm families—in short, they have been moving toward a family farm that has a fair chance adequately to support the family.

Static View

The converse, the static view of the family farm, sees it essentially as it was operated by an earlier generation. In this setting it is now under-equipped, under-capitalized, and inadequately managed to earn a continuing level of living for the family on it, comparable with other families not so handicapped.

Such a farm earned a kerosene-lamp and a horse-and-buggy level of living for the earlier generation who operated it—and still would do so. This, however, is not what most families now desire as a level of living.

Clearly the static view of the family farm requires more farms and a larger population on farms than does the dynamic view. But should national policy consciously perpetuate such farms, and relegate the families thereon to lesser opportunity than an advancing national economy otherwise would provide to them and their children?

It is my view that these are not even family farms. Rather I believe that the dynamic concept is the only tenable one for a healthy rural economy, because a farm is not a family farm if it fails to support a family. It seems to me that in terms of this fundamental requirement of family support, we are moving **toward** family farms under the dynamic concept, and **only** in terms of the dynamic concept. Thus, I obviously believe that national policy should be directed consciously to this end, because only in this manner can the best interests of an optimum number of farm families be served, in this and in subsequent generations of farmers.

3. COST-PRICE SQUEEZE—If we had to designate the one most-serious farm problem at present, many of us probably would point to the cost-price squeeze. But this squeeze, real as it is, has distinctly different meaning to farm families at the opposite ends of the economic scale.

The parity ratio has been bouncing in the mid-to-low 80's during most of the last five years, and is generally regarded as highly disadvantageous to farmers. In matter of fact, the parity ratio has no such blanket application. The leadership group of farmers, for example, has a differ-

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ent mix of costs—a more advantageous mix—than is used in calculating the parity ratio. They have gone far in substituting lower cost factors like fertilizer and power for higher cost factors like labor. Thus the parity calculations do not properly measure (that is, they overstate) the costs these farmers actually are incurring. Secondly, the leadership group gets more production response than average from a unit of their costs—that is, more output per unit of input. The parity ratio, as calculated, is a spurious measure of the economic position of farmers in the leadership group. It is erroneous, also, for the farmers at the other end of the scale—for the "followers" group—though in this case it overstates the actual economic position of such farmers. Their situation is worse, commonly much worse, than the parity ratio implies.

It seems to me obvious that no farm programs can be developed to serve the needs of both farm families and the public if all farmers are to be treated as though their problems were the same. At the very least, we need programs for the segment of agriculture that is highly productive and is the food base of our predominantly urban nation—and, equally, we need quite distinctly different programs for the more depressed segment of agriculture, including the many farm families who will never earn from farming a level of living comparable to what other American families enjoy.

It is obviously easier to make these interpretations and arrive at these conclusions than it is to formulate policies to carry the conclusions into indicated lines of adjustment. But it seems to me essential to clarify the problems as much as possible or there is no hope whatever that policies will be adopted through which the problems will be alleviated.

* * *

ADJUSTMENTS—I recognize fully that not everyone sees the problems in this same setting—to say nothing of accepting such solutions as might be suggested. But then, the problems have been a long time building, and I have no expectation that they will be solved in the short-run future.

For the commercial segment of agriculture, I consider the most pressing problem to be the reduction of accumulated surplus stocks. The present situation of this segment of farm families would be a great deal brighter if they had not "borrowed" $8 or $9 billion of future income in the form of the stockpiles. These commodities do not have any obvious home—which is why they are in stockpile. By no conceivable means can they be pushed into the market either here or abroad without adverse impact on prices received for current production. If they are dribbled off slowly they have less current impact on the market, and if they are unloaded fast, they have greater impact.

However, the stockpiles are a reality, and cannot be wished away. They must be liquidated by whatever means are possible, and with the smallest impact on farmers' current marketings. This is an imperative first step in improving the position of commercial farmers.

Second, we are faced with several percentage points of production—4, or 5 or 6—beyond quantities that can be sold at what are looked upon as acceptable prices. This excess production has been stimulated by a national-average intensity of farming greater than is justified by our domestic and overseas markets. To the degree that price supports have been incentives to production, they have contributed to the intensity of farming that has created our excess quantities of product. In this connection it is important to note (a) that advancing technology tends to make a diminishing support level still an incentive; and (b) that a support (like a price) that is discouraging to one farmer may be a considerable incentive to another.

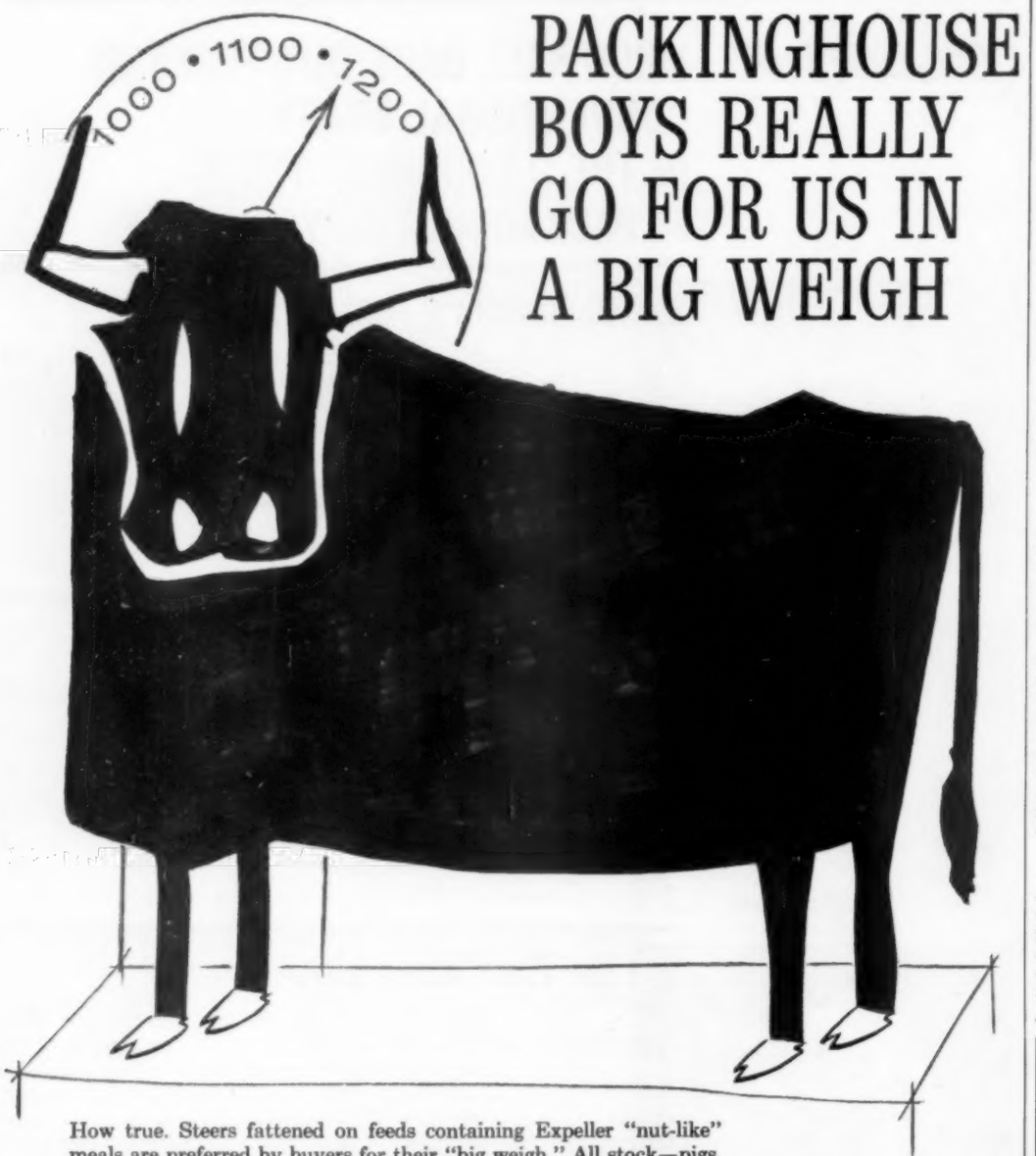
Two Adjustments

In order to meet the challenge of excess production, two adjustments seem to me to be indicated: (1) any price support levels (as, for example, wheat) which are currently above equilibrium level with market realities should be pulled down to as near equilibrium as can be determined. This is roughly where we are now with corn. (2) I accept the concept that a soil bank offers potentials for adjustment if properly used. "Proper use" means, to me, that a soil bank program must be concentrated on whole-farm units. A soil bank can be used to pass out dollars to farmers, if that is its purpose, by operating it on a part-farm basis—but it will accomplish little production adjustment. Any decision to use a soil bank clearly must answer the purpose for which the program is designed. And if the purpose is production adjustment, only emphasis on whole-farm units will get the job done.

Third, for the benefit of commercial farmers, I would suggest that price supports on major commodities should be used—at the highest possible level that will not build up additional stockpiles in CCC. Such price supports have the same function and meaning to commercial farmers that unemployment insurance has to industrial workers. But price supports can no more properly be the market than an unemployment register can be an employer. Neither can price supports ever be high enough to contribute materially to the income level of families in the less productive segment of agriculture without enforcing intolerable production limitations on the leadership group of farmers.

Supply-Control

It is precisely this situation which disenchants me with the currently prevalent concept of supply-control. Supply-control means that each farmer would have to have a marketing quota—a license to sell so much and no more. Total authorized marketings



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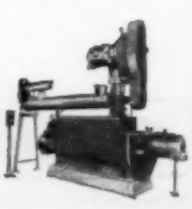

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CHICK STARTER INGREDIENTS—Dr. Max W. Moeller, nutritionist for Dr. Salsbury's Laboratories, made up this visual aid to demonstrate the various proportions of ingredients for a complete chick starter. From right to left, the bagged ingredients and their weights to make 100 lb. of feed: trace minerals, 11 gm.; vitamins, 35 gm.; the coccidiostat, antibiotics, and growth stimulant, 90 gm.; unidentified growth factors, minerals, and animal fat, 18¼ lb.; soybean oil meal, 21 lb., and grain and grain by-products, 60 lb. Total: 100 lb. complete chick starter.

would be small enough to create price-lifting scarcity. This, of course, is the purpose of the quotas. The intent would be to control the productivity of the efficient farmer so that the less efficient segment of agriculture would have a place in the market. I consider the concept to be based on two false premises: (1) that the needs of farm families at both ends of the economic scale can be served with one program; (2) that the public welfare, the common good, is served by fostering inefficiency in our national production efforts.

If the points above are a policy framework for commercial agriculture (with, of course, numerous lesser points missing), what of the more depressed segment of farm families? These would benefit little from the above, just as they have benefited little from national economic policy for agriculture throughout the past generation. I can do no better than to support the concept for which Undersecretary Morse deserves so much credit—the Rural Development concept.

Clearly this is no panacea. Also, it will move relatively slowly. But I doubt that there are any panaceas—at least no one to my knowledge has found generally acceptable ones. Moreover, most sound economic development does not happen overnight. But the concepts of expanded educational opportunity in rural areas, with emphasis on vocation education where necessary; improved health services to rural people; and expansion of industrial employment and other job opportunities into rural regions are, to my thinking, the most worthwhile directions of development for the under-employed in agriculture—and the only policy direction which has ever promised broader horizons of opportunity to many thousands of economically depressed farm families.

The above commentary is painted in broad brush strokes at best. It contains little that sparkles with any shiny newness. It does, in terms of my biases, look in the directions of serving both farm families and the nation.

Maine Says Value of Hay Is Overrated

AUBURN, MAINE — Dairy Herd Improvement Assn. supervisors and farmers alike have a tendency to rate hay a little too high in nutritive value, Ralph Corbett, dairy specialist for the cooperative extension service, University of Maine, told more than 60 dairymen who attended a pastures and forage meeting at the Auburn Tractor Co. headquarters.

He pointed out that a ton of good hay would yield about 1,000 therms to the ton, while poor hay would give about 700, a difference of 300 therms, which are equal to four bags of grain.

Mr. Corbett cited an instance in Penobscot County where the county agent had been working with a dairyman who owned a fairly good size herd of cows. A forage analysis was taken of every different lot of hay that he had, and then it was figured out how much grain and hay should be fed to each individual cow, depending on the hay rating.

After a 10-month study, Mr. Corbett reported, the dairyman in question found he was $1,200 ahead in grain cost saving as compared with the previous year.

E. J. Gehrig Retires From Quaker Oats

CHICAGO—The retirement of Eugene J. (Gene) Gehrig as consulting engineer for milling is announced by The Quaker Oats Co.

Mr. Gehrig came to Quaker in 1945 as assistant to the chief engineer, serving as manager of the milling section until 1958 when he was appointed to the post he held at his retirement Dec. 31. Prior to joining Quaker, he had been associated with the Allis-Chalmers Mfg. Co., Milwaukee.

A native of Switzerland, he is a member of the American Society of Mechanical Engineers, a former president of the Chicago Millers Club, and a member of the technical research committee of the Association of Operative Millers.

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Workshop Approach Planned for Oklahoma Meeting

STILLWATER, OKLA.—The 12th annual Oklahoma Formula Feed Conference will be held March 10-11, on the Oklahoma State University campus, Dr. R. H. Thayer, university poultry science department, announced.

Some revision in the format of this conference has been made in line with the rapid developments in nutrition and feed manufacturing, stated Dr. Thayer, the conference chairman.

The first day of the one-and-one-half day meeting will be taken up by a workshop. The workshop program will be centered around ruminant nutrition and non-ruminant nutrition with one-half day being devoted to each nutrition area.

Those in attendance will be divided into two groups with each group having the opportunity to attend both meetings during the day, Dr. Thayer explained. This workshop will be aimed primarily at the needs of feed salesmen, feed dealers, feed supplement representatives and producers, with the latest basic information in regard to nutrition and management being discussed.

The Saturday morning meeting will feature a panel discussion of nutrition and parasitism. Members of the panel from the College of Veterinary Medicine, Oklahoma State University, include: Dr. Everett D. Besch, department of veterinary parasitology, moderator; Dr. A. L. Malle, department of veterinary pathology; Dr. D. D. Goetsch, department of physiology and pharmacology, and Dr. J. Wiley Wolfe, department of veterinary medicine and surgery.

It is anticipated that the workshop approach to the needs of the feed industry in Oklahoma will be expanded in future years to a two or three day meeting, Dr. Thayer said. It is felt that the conference approach, while it has served its purpose adequately in the past, has to be modified in many respects to meet the demands for a continuing program of adult education as it is found in the feed industry today.

Ohio Reports on Alfalfa Pellet Use

WOOSTER, OHIO—Pellets made of alfalfa that is too finely ground are not used completely by dairy cattle, Ohio research shows.

Dr. H. R. Conrad and Dr. J. W. Hibbs, the Ohio Agricultural Experiment Station, say that the fine particles of roughage, even when the alfalfa is of high quality, move too rapidly through the rumen of the cow where the bulk of the cellulose digestion takes place. This reduced digestibility results in the formation of less acetic acid and a lower butterfat production in the milk.

Three to five pounds of long hay had to be fed daily to cows in addition to pellets in order to hold up maximum feed intake. The researchers report their experiments more fully in Research Circular 91, available from the experiment station.

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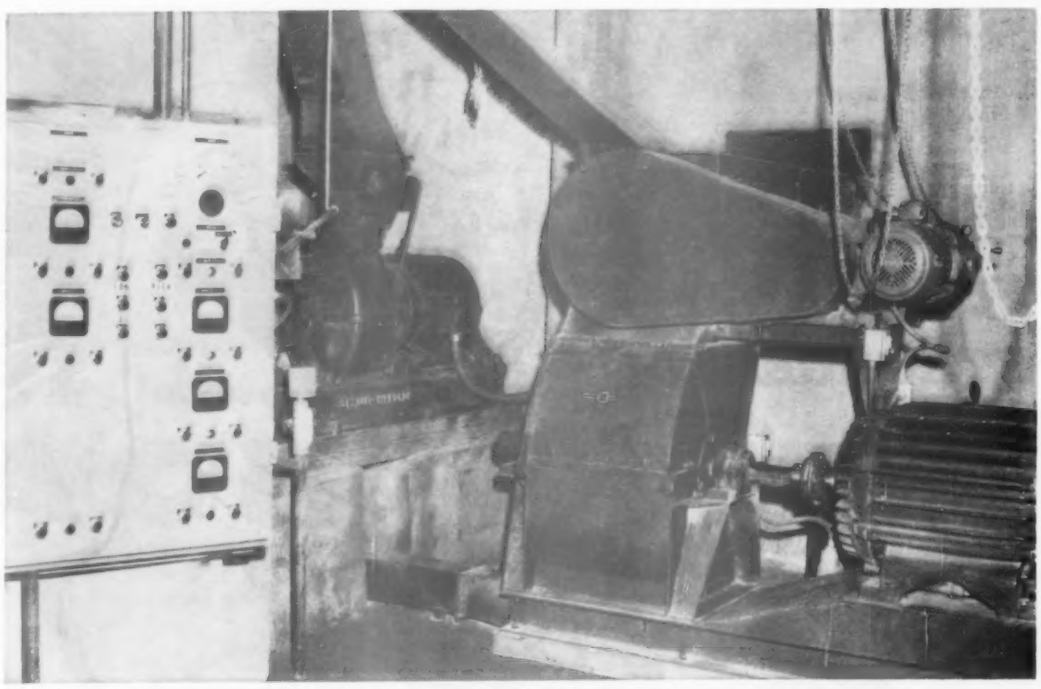

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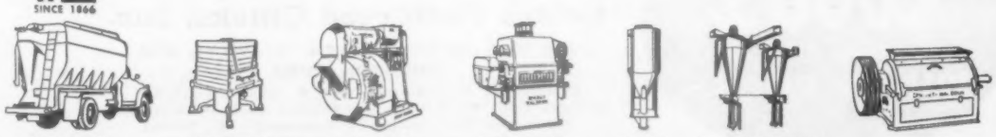

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SALES MEETING—Pictured here are Prater sales engineers and company officials who attended the annual sales meeting in Chicago.

Front row, left to right: Bill Earl, Robert Prater, Howard Baumann, Dale Pederson, Harold Attebery, George Thomas, Ed Wadington, Sam Meier, Dave Lingrad, Roland Nelson and Charlie Davis.

Second row: Harry Bauer, Dick Patty, Owen Collins, Paul McKamy, Leonard Ruffin, Ernie Cochran, Bob Powers, Bob Wagner, George Holden, Dick Stangler and Ed Stauffer.

Third row: Bob Masopust, Stretch Ebbinger.

Fourth row: Morse Johnson, Marshall Carpenter, Ralph Hegman, Carl Rodemer, Les Maner, John Kotilinek, Earl Dodson, Gordon Johnson, Stanley Shelley, Elmer Hase and Andy Thompson.

Fifth row: Kenneth Fishbaugh, Bob Hunt, Dick Nowicki, Bob Barmore, Roy Hudson.

Prater Holds 35th Annual Sales Meeting

CHICAGO—The 35th annual sales meeting of the Prater Pulverizer Co. drew 41 sales engineers, representing 30 states, to the Oak Park Arms Hotel, here, recently.

Theme for the meeting was "Modernize With Prater's Seven Steps to Feed Mill Profits." It emphasized a new Prater profit protection program for the custom miller.

Speakers included Robert Fischer, sales manager, Beardstown Mills (Critic Feeds), whose subject was "What a Corn Belt Feed Manufacturer Thinks of Local Milling and Its Future!" G. F. Thomas, Prater president, gave the welcoming address and Bob Prater, vice president, spoke on "Money—Where to Get Some."

The annual banquet was attended by over 92 Prater sales engineers, their wives and Prater officials.

Temperature Effect On Broilers Studied

MEMPHIS, TENN.—Temperature and ventilation control in poultry houses has a marked effect on feed consumption and efficiency, according to a Connecticut scientist.

Ralph R. Prince, assistant agricultural engineering professor, University of Connecticut, told the American Society of Agricultural Engineers here that feed efficiency increased significantly when the chicks' environmental temperature was increased from 45 to 75°.

"Feed efficiencies were .351 and .395 lb. of gain per pound of feed consumed for the 45 and 75° treatments, respectively," he reported.

Mr. Prince, working with W. C. Wheeler, also found that the chicks' food consumption declined more than 8% at the higher temperatures. This amounted to almost ½ lb. feed per bird.

Feed consumption also was reduced significantly by decreasing the ventilation rate from 2 to ¾ cu. ft. per minute. The reduction amounted to .126 lb. of feed per bird.

"Weight gain was not significantly affected by the temperature or ventilation changes," Mr. Prince stated, "although there was a slight trend toward better gains at the higher temperature."

Arkansas Industry Growth in '60 Told

LITTLE ROCK, ARK. — At least nine new feed and poultry industries were established in Arkansas during 1960, according to figures released by the Arkansas State Chamber of Commerce.

Chamber figures showed that the industries represented a total investment of more than $5,075,000 and created more than 825 new jobs.

Five of the new industries were poultry processing plants, two were hatcheries and two were feed mills.

The new processing plants, their estimated capital investment and the number of their employees include: Arkansas Valley Industries, Inc., Waldron, $1,000,000, 375; Farmers Produce Co., Rogers, 125; Garret Poultry Co., Rogers, $150,000, 125; Independent Poultry & Egg Co., Russellville, $250,000, 33; and Pike County Poultry Co., Murfreesboro (subsidiary of Armour & Co.), $500,000, 100.

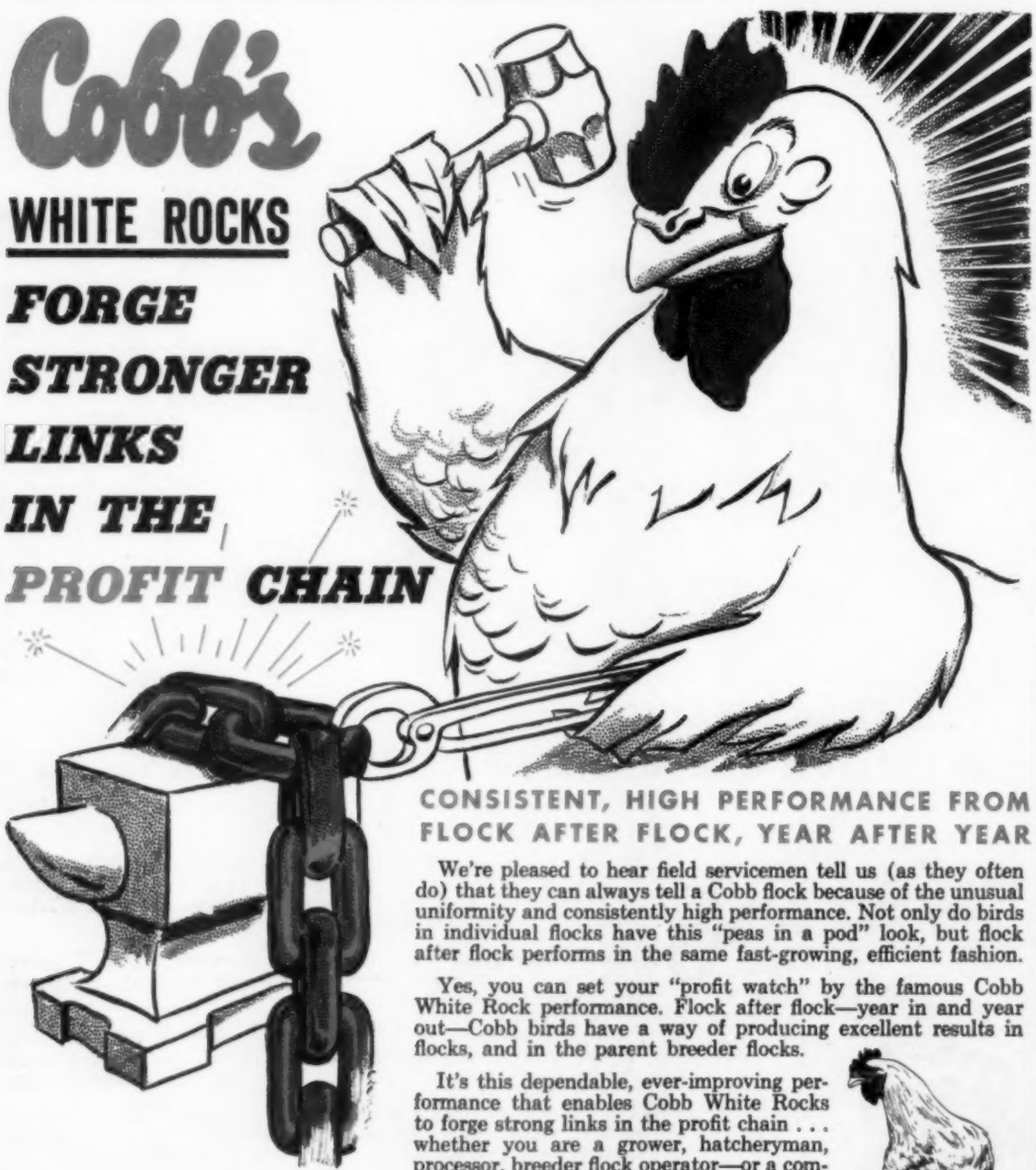
New hatcheries include the Thompson & Janes Turkey Hatchery, Russellville, which cost an estimated $350,000 and has 10 employees, and the Cobb's Pedigreed Chicks, Inc., Siloam Springs, built at a cost of $250,000 and having 10 employees.

New feed companies are the Arkansas Grain Corp.'s soybean processing plant at Stuttgart, which cost an estimated $2,500,000 and has 60 employees; and the El Dorado Milling Co., which cost $75,000 and employs 10.

Cobb's

WHITE ROCKS

FORGE STRONGER LINKS IN THE PROFIT CHAIN



CONSISTENT, HIGH PERFORMANCE FROM FLOCK AFTER FLOCK, YEAR AFTER YEAR

We're pleased to hear field servicemen tell us (as they often do) that they can always tell a Cobb flock because of the unusual uniformity and consistently high performance. Not only do birds in individual flocks have this "peas in a pod" look, but flock after flock performs in the same fast-growing, efficient fashion.

Yes, you can set your "profit watch" by the famous Cobb White Rock performance. Flock after flock—year in and year out—Cobb birds have a way of producing excellent results in flocks, and in the parent breeder flocks.

It's this dependable, ever-improving performance that enables Cobb White Rocks to forge strong links in the profit chain . . . whether you are a grower, hatcheryman, processor, breeder flock operator—or a completely integrated operation.

Your Cobb representative has an exciting new "Profit Link" folder that documents this outstanding performance. Write or telephone him today. If you prefer, write direct.

Cobb's Strain Cross WHITE ROCKS

Cobb's Pedigreed Chicks, Inc.

Main Office and Breeding Farms • Concord, Mass.

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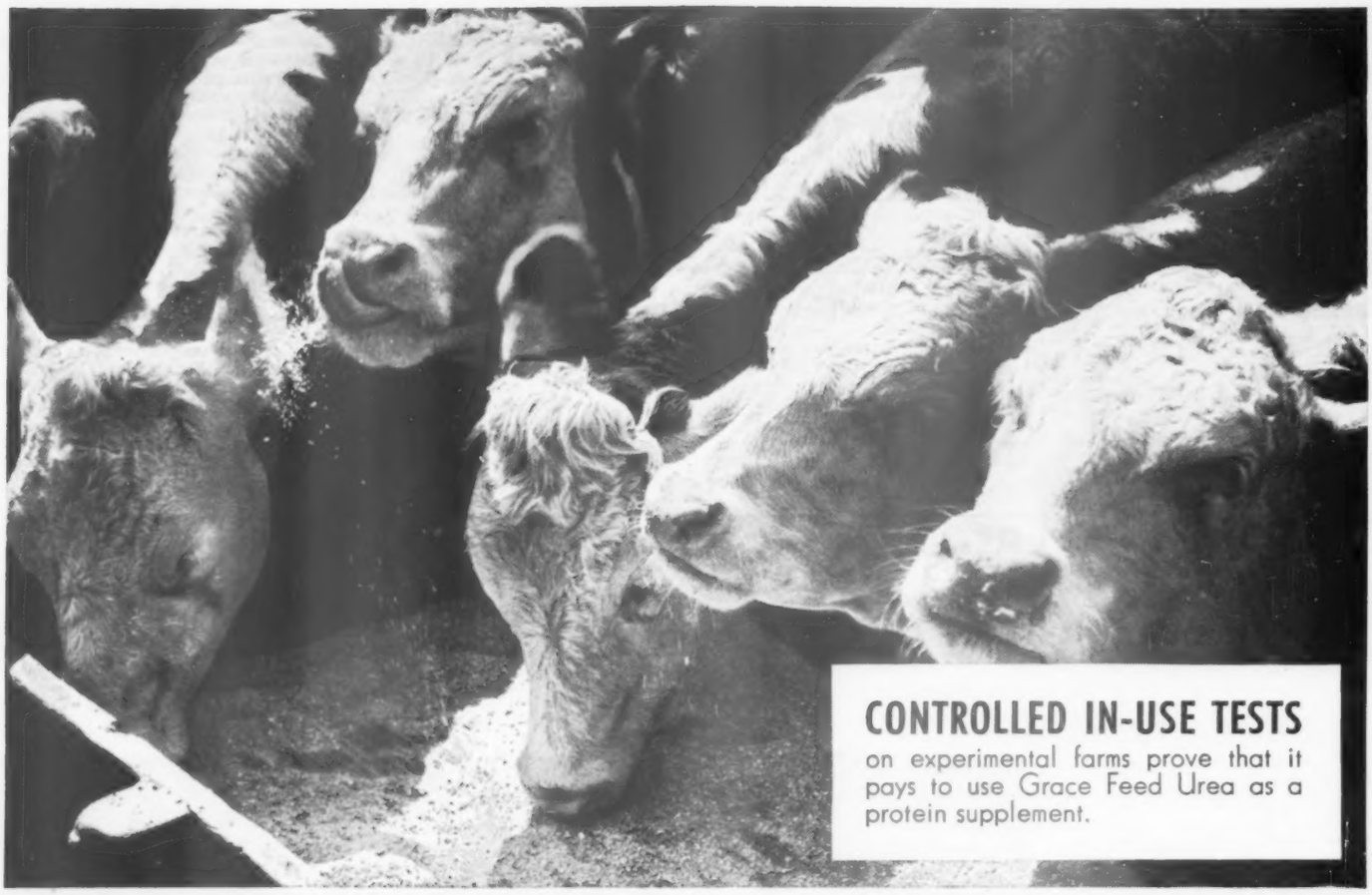

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NEWS BULLETIN

Recent extensive mixing and separation tests by a leading independent feed ingredient expert demonstrate that GRACE MICRO-PRILLED UREA FEED COMPOUND STAYS MIXED BETTER than other urea feed compounds tested.

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You, too, can count on trouble-free blending and better dispersion—*mix after mix after mix*—with Grace Urea. The reason is a special Grace process that produces a free-flowing, nonsegregating, and noncaking feed compound.

So . . . guard *your* quality, cut *your* costs *like the largest mixers do.* Use Grace Urea Feed Compound. Readily available right now . . . in your area . . . in any quantity. Write for complete details.

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IDEAS TO HELP YOUR CUSTOMERS

Downgrading Poultry

The poultry problem next in importance to condemnations is the downgrading of poultry carcasses at the processing plant, a University of Georgia extension poultryman states. He says that bruising is the main cause of downgrading and estimates that last year Georgia poultry producers lost $2 million from careless handling of live poultry, equivalent to the destruction of nearly five million birds.

He comments that until recently it was not known who to blame for the bruising, but some basic and applied work has been done in Georgia and other states.

Those studies, he stated, show that 90% of the bruises in samples taken from a packing plant were less than 14 hours old. Research from another state has indicated that 70% of the bruises occur during catching at the broiler house.

He advised that the producer: be careful of any practice which could cause bruises in the last four days before marketing, eliminate sharp objects such as brooders and adjustment legs of waterers and feeders, remove all equipment from the floor before the birds are caught, and make sure the broilers are caught correctly.

For catching crews, he advised: catch birds in 200-300 units, carry the broilers by the shank only, be careful to lift and place the birds into the coop since most bruises are inflicted by banging the birds on the coop and door opening, and make sure that no coop containing birds is thrown.

◆

Detecting Mastitis

Dairymen have been advised by a University of Missouri dairy department staff member to use the California mastitis test in their herds to detect the most costly of dairy cattle diseases. R. T. Marshall says that most dairymen are unable to attack their mastitis problem effectively because they lack information regarding the udder health of their individual cows.

Mr. Marshall says that the paddle and reagent for the test are available from most veterinarians.

The test which may be done in the milking barn detects the presence of abnormally high numbers of body cells which are produced to fight infecting bacteria. Normal milk remains liquid but that from an inflamed quarter reacts with the test to cause thickening in proportion to the amount of inflammation present.

He says that the degree of reaction is important since the test does not identify bacteria which causes mastitis. From 50-70% of the quarters with moderate reaction are found to harbor mastitis but those reacting strongly had nearly a 100% incidence of mastitis.

◆

Egg Washing Compounds

Zinc sulphate has been shown to be a superior egg washing compound for poultry farmers, according to Dr. Bert W. Bierer, veterinarian with the poultry department, Clemson College.

Dr. Bierer said he has been conducting extensive research to evaluate the egg-shell germicidal effect of various chemicals and egg-washing compounds.

"Many poultry farmers have egg contamination problems," said Dr. B. D. Barnett, head of the Clemson poultry department. "When eggs are laid they often get dirty, and disease organisms on the outside of the shell penetrate to the inside. One of the most prevalent of these disease organisms is Salmonella typhimurium, which is responsible for para-typhoid infection in poultry, especially turkeys.

"In order to reduce this contamination, most of the 60 trillion chicken eggs and 120 million turkey eggs produced in the nation each year are washed in some egg-washing compound. The importance of an economical and effective material for use in this process is readily apparent."

Dr. Bierer said he recommends that eggs be washed as soon as possible after gathering and emphasizes that this step is an adjunct rather than a substitute for routine fumigation, or farm hatchery sanitation.

"Although these findings are of greatest importance to turkey growers, the researchers feel that zinc sulphate has sufficient merit as an egg wash to recommend it for use on market eggs in general," it was stated.

◆

Lean Hogs Efficient

Hog producers have been advised by the U.S. Department of Agriculture that lean hogs can gain more rapidly and efficiently than fat ones.

In the tests, USDA workers started with one group of Duroc hogs. When these hogs weighed about 175 lb., their backfat thickness averaged

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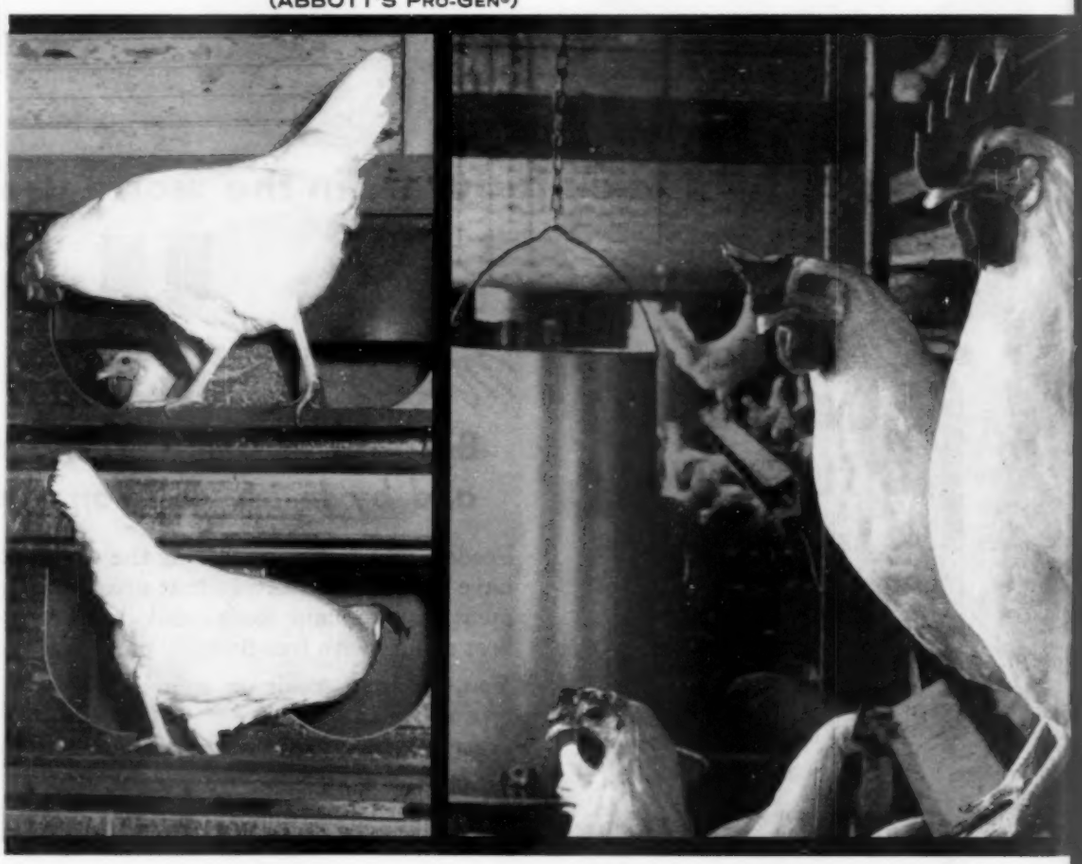
(ABBOTT'S PRO-GEN®)



In test after test, Arsanilic Acid performs best under practical conditions!

When good feeds, top management and first-rate housing combine to keep hens healthy, laying percentages are almost sure to be satisfactory. But these three basic factors of good poultry raising cost money —extra money. They represent ideals . . . always desirable but not always attainable.

Arsanilic Acid Works Best When It's Needed Most. Most egg producers take a practical viewpoint. They know they can't operate like a research farm. Yet, production is the lifeline of their business . . . so, they turn to Arsanilic Acid to help keep hens healthy—keep production up.

Almost every hen is host to disease germs. Under practical conditions—during stress—hens may lack the vitality to fight off infection. That's where Arsanilic Acid comes in . . . and the tougher the battle, the harder Arsanilic Acid fights. It opposes harmful bacteria in the intestinal tract—helps protect against active disease—helps prevent laying slumps.

1½ in. From these hogs, workers selected a line noted for high backfat thickness. They also selected another line noted for low backfat. Then they raised four generations of the hogs. By the fourth generation, the lean hogs, with a low backfat thickness of 1.25 in., weighed 35 lb. at weaning. They gained 1.58 lb. daily until reaching 175 lb.

The other hogs, with a high backfat thickness of 1.8 in., weighed only 30 lb. at weaning. And they gained only 1.47 lb. until reaching 175 lb. There's the evidence in favor of meat type hogs—higher weaning weights, higher daily gains.

◆

Pig-Cattle Shift

University of Minnesota extension economists have advised farmers that replacing some of the cattle in a feeding operation with feeder pigs may give income a boost. They say that except for feedbunks most of the feed and facilities in a typical cattle feeding operation can be used for pigs.

However, the economists advise against jumping in and out of the cattle business. Their recommendation, they say, does offer some flexibility in a feeding operation if the need arises.

A feeder's decision to shift between cattle and hogs may be based on one or more of several factors, including:

(1) If one or the other offers better profit prospects.

(2) Whether credit becomes short relative to corn for the cattle feeding.

(3) Whether he wants a more diversified feeding program.

The clue to shifting between enterprises is the ability to estimate the most profitable market outlook. A market analysis of the past eight years shows that in 1953 and 1959 the feeder pig operation should have been emphasized for maximum returns. In 1957 and 1958 yearling cattle were by far the best money makers. Other years it was about a toss-up.

To the extent that a farmer can forsee the profit-prospect variations, he can change his cost and income position considerably by adjusting his feeding program, the economists say.

Only about half as much capital is needed for pigs as for steers to utilize a given amount of corn. This may be important if credit is short or expensive. Five weanling pigs costing about $70 will clean up about as much corn as a good yearling steer that costs $160.

One way to spread livestock income through diversification is to include a feeder pig finishing program in feeding plans. For example, a feeder who buys yearling cattle in early fall, pastures a short time, puts them on full feed and markets in late winter, could then buy and feed out pigs in time to hit the good summer market.

Condemnation Rate For November Told

WASHINGTON — Federal inspection of poultry during November was well ahead of that for the same month a year earlier, and the condemnation rate on young chickens for the month was 2.82%, according to U.S. Department of Agriculture figures.

A total of 140,330,000 head of poultry was inspected under the Poultry Products Inspection Act, as compared with 125,057,000 in the same month of 1959.

Post-mortem condemnations totaled 14,628,000 lb. (NYD weight) Ante-mortem condemnations totaled 1,139,000 lb. (live weight).

A break down of the total number of head of poultry inspected follows: Young chickens, 113,874,000 head; 399,505,000 lb.; mature chickens, 13,862,000 head, 66,484,000 lb.; young turkeys, 10,406,000 head, 213,495,000 lb.; old turkeys, 79,000 head, 1,191,000 lb.; fryer-roaster turkeys, 1,412,000 head, 12,646,000 lb., and ducks, 700,000 head, 4,332,000 lb.

Post-mortem condemnations were equivalent to the following percentages of quantities inspected: Young chickens, 2.82%; mature chickens, 2.78%; young turkeys, 1.31%; old turkeys, 1.03%; fryer-roaster turkeys, 2.22%, and ducks, 2.03%.

Ante-mortem condemnations were equivalent to the following percentages of live pounds inspected: Young chickens, 0.19%; mature chickens, 0.29%; young turkeys, 0.07%; old turkeys, 0.12%; fryer-roaster turkeys, 0.21%, and ducks, 0.03%.

R. W. Judd to Join Soybean Crop Council

CHICAGO—The National Soybean Processors Assn. announces that, effective Feb. 1, Robert W. Judd will join the association as managing director of the association's National Soybean Crop Improvement Council.

R. W. Judd

Mr. Judd will succeed J. W. Calland, who has been managing director of the council since its inception in 1948. Mr. Calland is retiring, but has consented to continue in an advisory capacity for a limited period.

Mr. Judd, for the last three years, has served as county extension director for Iowa's Cerro Gordo County. Previously, he had extensive farm management and farming experience. He is a graduate of Iowa State University, Ames.

The council, under Mr. Calland's leadership, has worked closely with agronomists and growers to expand the areas of production and increase the yields of soybeans.

in so many 1961 layer feeds!

Low Cost—Big Returns. Arsanilic Acid is the low-cost production builder that helps hens fill more egg baskets any time of year. It costs only a couple of pennies per hen per year—costs so little your customers can't afford to be without it. In a 12-month feeding trial in Michigan, a good ration plus Arsanilic Acid produced 15.7% more eggs. Yet, an increase of only two eggs a day per 1,000 hens paid for the Arsanilic Acid.

Useful In All Types Of Feeds. Every year, more egg producers are asking for low-cost Arsanilic Acid in all their poultry feeds. Not because they're trying to replace good feeds, good management and good facilities with medication, but because they know that, under practical conditions, Arsanilic Acid-fed hens stay healthier and lay better.

Available In Two Convenient Forms. Arsanilic Acid is available in pure form or in premix form (one pound of premix is enough for one ton of complete feed). It's manufactured by Abbott and sold under the trade name PRO-GEN®. Ask your Abbott man for details, or call Abbott Laboratories, Chemical Marketing Division, North Chicago, Illinois. 101585

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Convention Calendar

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

Feb. 20-21—Midsouth Soybean and Grain Shippers Assn.; Jung Hotel, New Orleans, La.; sec., Paul C. Hughes, Box 658, Blytheville, Ark.

Jan. 23-25—Farmers Grain Dealers Assn.; Civic Memorial Auditorium, Fargo, N.D.; sec., Lloyd C. Hanson, 513 Black Bldg., Fargo.

Jan. 23-25 — Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.; for reservations: Atlanta Convention Bureau, Rhodes - Haverty Bldg., Atlanta.

Jan. 25—Louisiana Livestock Producers Day; Law Bldg., Louisiana State University, Baton Rouge; chm., Dr. G. L. Robertson, Animal Industry Dept.

Jan. 27 — Missouri Turkey Day; University of Missouri, Columbia; E. M. Funk, sec., Missouri Poultry Improvement Assn., Poultry Bldg., Box 568, Columbia.

Jan. 31-Feb. 1—Illinois Agricultural Industries Forum; University of Illinois, Urbana; Department of Agricultural Economics, 305 Mumford Hall.

Jan. 31-Feb. 1 — Hoosier Turkey Trot; Purdue Memorial Union, Purdue University, Lafayette, Ind.; John N. Howell, Turkey Department, Indiana State Poultry Assn., Poultry Bldg., Purdue University.

Feb. 1-2—Illinois Nutrition Conference; University of Illinois, Urbana; chm., E. E. Hatfield, Department of Animal Science.

Feb. 1-2—New Hampshire Poultry Health Conference; Memorial Union Bldg., Durham; sponsored by Department of Poultry Science, University of New Hampshire; Prof. W. C. Skoglund, Poultry Science Dept.

Feb. 2—Beef Cattle Study Day; University of Arkansas Agricultural Experiment Station, Fayetteville.

Feb. 2-3—Oregon Animal Nutrition Conference; Withycomb Hall, Oregon State College, Corvallis.

Feb. 3-4—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., Roy Munson, 2200 University Ave., St. Paul, Minn.

Feb. 5-7—Wyoming Grain, Feed & Seed Dealers Assn.; Hotel Townsend, Casper; sec. Everett L. Berry, Box 118, Sheridan, Wyo.

Feb. 6-7—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas,

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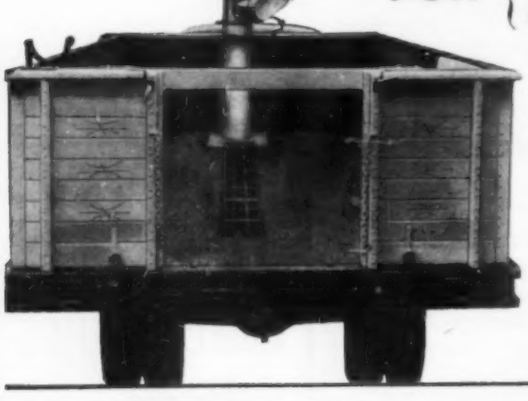

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For All Livestock and Poultry
Lower Feed Costs — Better Efficiency
College Tests Show Yeast Culture Values
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WESTERN YEAST COMPANY
Chillicothe, Illinois

Animal Industry and Range Management Dept.

Feb. 7-10 — American Dehydrators Assn.; Jung Hotel, New Orleans, La.; executive vice president, Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 8-9—Pacific Northwest Feed Mill Production School; Hotel Leopold, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 9-10—Utah Feed Manufacturers & Dealers Assn., Annual Meeting and Nutritional Conference; Newhouse Hotel, Salt Lake City; sec., Dr. Lawrence Morris, Brigham Young University, Provo.

Feb. 10 — Washington State Feed Assn., annual convention; Hotel Leopold, Bellingham, Wash.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10-11—Poultry Fact Finding Conference; sponsored by Institute of American Poultry Industries; pres., Harold M. Williams, 59 E. Madison, Chicago 2.

Feb. 13-14—Carolina Grain & Feed Dealers Assn.; Charlotte Hotel, Charlotte, N.C.; sec., Wm. E. Lane, North Carolina Department of Agriculture, Raleigh.

Feb. 13-15—Farmers Elevator Association of Minnesota; Pick-Nicollet Hotel, Minneapolis; sec., Lloyd A. Nelson, 512 Grain Exch. Bldg., Minneapolis 15.

Feb. 15—Turkey Short Course; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

Feb. 19-21—Midwest Feed Manufacturers Assn.; Hotel Muehlebach, Kansas City, Mo.; executive vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Feb. 19-21 — Ohio Grain & Feed Dealers Assn.; Neil House, Columbus; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington.

Feb. 19-21—Colorado Grain, Milling & Feed Dealers Assn.; Hilton Hotel, Denver; sec., R. L. Wier, 519 Boston Bldg., Denver 2.

Feb. 22—South Dakota Beef Research Day; South Dakota State College, Brookings; Dr. R. C. Wahlstrom, Animal Husbandry Dept.

Feb. 22—Kentucky Turkey Assn.; University of Kentucky, Lexington; J. E. Humphrey, poultry extension specialist.

Feb. 22—Broiler Housing Symposium; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

Feb. 23—Illinois State Turkey Growers Assn.; University of Illinois, Animal Sciences Laboratory; S. F. Ridlen, Poultry Ext. Specialist, Urbana.

Feb. 28-March 1—Virginia Feed and Nutrition Conference; Hotel Roanoke, Roanoke; sec., J. Paul Williams, Virginia State Feed Assn., 615 E. Franklin St., Richmond.

March 1-2—Colorado Livestock Days; March 1, Sheep and Wool School, Swine Day and Beef Producer Day; March 2, Feeders Day; Colorado State University, Fort Collins; chm., E. K. McKellar.

March 8 — Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati, Ohio; L. E. Carpenter, Executive Director, Distillers Feed Research Council, 1232 Enquirer Bldg., Cincinnati 2.

March 8-9 — Nebraska Grain & Feed Dealers Assn.; Sheraton-Fontenelle Hotel, Omaha; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

March 10-11—Oklahoma Feed Industry Conference and Workshop; Oklahoma State University, Stillwater; chm., Dr. Rollin Thayer, Poultry Science Dept.

March 15—Commercial Egg Production Short Course; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

March 16-17—Oregon Feed & Seed Dealers Assn.; Sheraton - Portland Hotel, Portland; mgr., Russ Hays, 702 Lewis Bldg., Portland 4.

March 16-17 — Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. R. D. Creek, Poultry Husbandry Dept., University of Maryland, College Park.

March 20-24—Grain & Feed Dealers National Assn.; Washington D.C.; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

April 3-4 — National Institute of Animal Agriculture; Purdue Univer-

(Turn to page 88)

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Not a stone has been left unturned—not one selling aid overlooked—to help establish you, once and for all, as the recognized authority on, and supplier of, hog products. Let's peek into this giant promotion package for a preview of what the future holds for you. First, there's a colorful 16-page Hog Health Manual to be mailed to every hog raiser in your area. This manual alone reflects knowledge and know-how in the hog business. The follow-up giant post cards, local newspaper advertising, radio announcements, classifieds and local newspaper publicity, all emphasize your name as hog products headquarters.

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on Hog Health Products *now expands into your area*

More than 200 dealers in Illinois and Indiana took part in—and profited by—this vast promotion test. *Now you can become the Dr. Salsbury's CERTIFIED HOG PRODUCTS HEADQUARTERS*

That's right! Dr. Salsbury is now certifying leading dealers as headquarters for the most complete, most profit-proven line of hog health products. Everything hog men need under one roof: disease-fighting medicinals, health boosters, disease preventives. You'll sell more hog products because of Dr. Salsbury's all-out sales promotion. And this increased store traffic is bound to boost sales of other goods you handle. Find out NOW about this new profit opportunity, about how YOU can become Dr. Salsbury's HOG PRODUCTS HEADQUARTERS in your area. Write, phone, or wire for complete information—without obligation, of course.

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"Your Hog Products Headquarters idea is terrific!" says Lloyd Buis & Sons, R. #2, Cloverdale, Ind. "The catalog mailing that you made direct to my customers brought real results. From what I hear, your 1961 program is even more powerful. Keep up the good work—it's working and selling hog products for me."

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sity, Lafayette, Ind.; sec., Karl D. Butler, P.O. Box 521, First National Bank Bldg., Ithaca, N.Y.

April 5—Purdue Egg Day; Purdue University, Lafayette, Ind.; David D. Jackson, Ext. Poultryman.

April 6—Feeders Day; University of Nebraska Experiment Station, North Platte; James C. Adams, Supt.

April 7—Missouri Livestock Day; University of Missouri, Columbia.

April 9-13 — American Association of Cereal Chemists; Baker Hotel, Dallas, Texas; 1955 University Ave., St. Paul 4, Minn.

April 10-12—Poultry & Egg National Board; Sheraton Towers Hotel, Chicago, Ill.; mgr., Lloyd H. Geil, 8 S. Michigan Ave., Chicago 3.

April 13-15—Pacific Dairy & Poultry Assn. Exposition and Convention; Riviera Hotel, Las Vegas, Nev.; sec., Carl E. Nall, 1304 7th St., Los Angeles 21, Cal.

April 17-18—Seventh Regional Area Convention, National Renderers Assn.; St. Paul Hotel, St. Paul, Minn.; sec., Harold Weiss, Gulf Soap Corp., Arabi, Louisiana.

April 20 — Nebraska Beef Cattle Feeders Day; University of Nebraska, Lincoln; Dr. R. M. Koch, chairman, animal husbandry department.

April 20-22—California Hay, Grain & Feed Dealers Assn.; Jack Tar Hotel, San Francisco; sec., Leo L. Johnson, Blue Anchor Bldg., 1400 10th St., Sacramento 14.

April 22—Alabama Poultry Industry Promotion Dinner, Dinkler-Tutwiler Hotel, Birmingham, Ala.; sponsored by Alabama Poultry Industry Assn.; sec., W. L. Walsh, Box 567, Montgomery.

April 24-26—Animal Health Institute; Mayflower Hotel, Washington, D.C.; sec., D. L. Bruner, 512 Shops Bldg., Des Moines, Iowa.

April 27-29—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson.

May 5—Broiler Short Course and Chicken-of-Tomorrow Day; University of Georgia, Athens; Dewey McNiece, Extension Poultry Dept.

May 7-10—American Feed Manufacturers Assn. Convention and National Feed Show; Conrad Hilton Hotel, Chicago, Ill.; sec., W. T. Diamond, 53 West Jackson Blvd., Chicago 4.

May 7-10—Association of American Feed Control Officials; Hamilton Hotel, Chicago; sec., Bruce Poundstone, Head, Feed and Fertilizer Control Dept., University of Kentucky, Lexington.

May 14-15—Missouri Grain & Feed Assn.; Hotel Coronado, St. Louis, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

June 8-11 — Canadian Feed Manufacturers Assn.; National Convention; Manoir Richelieu, Murray Bay, Quebec; national secretary, W. N. Hendrick, 2901 Bloor St. W., Toronto 18, Ont.; for registrations, T. G. Sevigny, Room 100, 355 McGill St., Montreal 1, Quebec.

June 9-10—Arkansas Poultry Festival; Little Rock; mgr., Arkansas Poultry Federation, John Haid, P.O. Box 1446, Little Rock.

June 13-16—Northeastern Poultry Producers Council Egg Quality School; Pennsylvania State University, University Park, Pa.; sec., Richard I. Ammon, 10 Rutgers Place, Trenton 8, N.J.

June 19-21—American Association of Feed Microscopists Annual Meeting; Continental Denver Motor Lodge, Valley Highway and Speer Blvd., Denver, Colo.; sec., G. M. Barnhart, Missouri State Department of Agriculture, Jefferson City, Mo.

June 19-24—Feed Microscopy Short Course, sponsored by American Association of Feed Microscopists; Continental Denver Motor Lodge, Valley Highway and Speer Blvd., Denver, Colo.; sec., G. M. Barnhart, Missouri State Department of Agriculture, Jefferson City, Mo.

June 20-21—Alabama Poultry Industry Assn.; Whitley Hotel, Montgomery, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

July 14-18—Georgia Feed Assn; Grand Bahama Club, Grand Bahama Island; sec., W. E. Merritt, Suite 1-A, 361 E. Paces Ferry Rd. N.E., Atlanta 5.

July 18-20—American Poultry Congress & Exposition; Municipal Auditorium, Minneapolis; Don M. Turnbull, sec., American Poultry & Hatchery Federation, 521 E. 63rd St., Kansas city 10, Mo.

July 24-25 — Southeastern Egg Quality and Grading School; Auburn University, Auburn, Ala.; sec., Southeastern Poultry & Egg Assn., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Aug. 24-26 — North Carolina Feed Manufacturers Assn.; Virginia Beach, N.C.; sec., McNair Evans, Box 44, Mocksville.

Aug. 24-27—Georgia Poultry Institute; Rock Eagle 4-H Club Center, Eatonton, Ga.; Dewey McNiece, Extension Poultry Dept., University of Georgia, Athens.

Sept. 11-13 — Feed Production School; Continental Hotel, Kansas City; sponsored by Feed Production School, Inc., pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Sept. 19-21 — Marketing Seminar for Feed Manufacturers; Morrison Hotel, Chicago; Sales Executives Council, American Feed Manufacturers Assn., W. E. Glennon, president, 53 W. Jackson Blvd., Chicago.

Sept. 27-29—National Feed Ingredients Assn.; Lake Lawn Lodge, Delavan, Wis.; sec., I. Levin, 517½ E. Locust St., Des Moines 9, Iowa.

Sept. 27-29—Pennsylvania Millers & Feed Dealers Assn.; Hotel Hershey, Hershey, Pa.; sec., D. W. Parke, P.O. Box 329, Ephrata, Pa.

Oct. 3-5—Northeastern Poultry Producers Council Exposition and Convention; Farm Show Bldg., Harrisburg, Pa.; sec., Richard I. Ammon, 10 Rutgers Place, Trenton 8, N.J.

Oct. 4-6—Texas Nutrition Conference; Texas A&M College, College Station; chm., Dr. J. R. Couch, Poultry Science Dept.

Oct. 23-25 — Centennial Nutrition Conference; Hotel Muehlebach, Kansas City 5, Mo.; sponsored by Midwest Feed Manufacturers Assn. and Land-Grant Colleges in Midwest's area; executive vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Oct. 26-28—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Head, Feed and Fertilizer Control Dept., University of Kentucky, Lexington.

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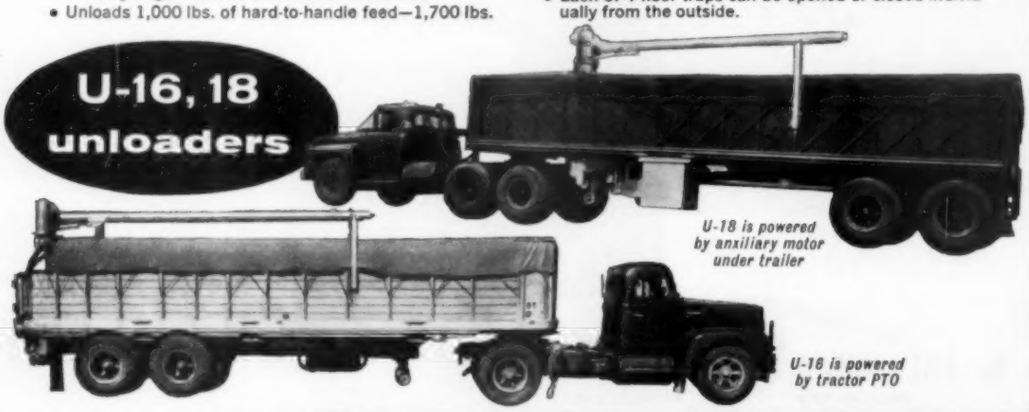

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Retires After 47 Years With Bemis Company

ST. LOUIS — Philip C. McGrath, who has been with Bemis Bro. Bag Co. for over 47 years and served as manager of the St. Louis bag plant and sales division from 1953 until last October, will retire from the company Jan. 30. He currently is special assistant to the Bemis director of sales in the St. Louis general office. Mr. McGrath joined Bemis in 1913 as a general helper in the pressroom, later working in the order department. In 1917, he moved into the sales department, where he served until 1953 as a salesman, assistant sales manager, and as a sales manager.

P. C. McGrath

New Feed Mill Opened At Kingston, Ontario

TORONTO — Blatchford Feeds, Ltd., Toronto, Ont., opened its new feed mill in Kingston recently. The mill serves farmers and dealers in the local trade area.

The mill is in the northeastern outskirts of Kingston. Parking facilities are unlimited.

The main building is constructed of cement blocks, is 100 ft. long by 40 ft. wide and is excavated to provide a total of 8,000 sq. ft. floor space. The mill is equipped for bulk handling and will draw its grain requirements mainly from the Kingston elevators.

Blatchford Feeds already operates a subsidiary mill at Norwood, Ont., while the main plant and head office are located in Toronto. Blatchford's is one of the oldest feed manufacturers, the year of establishment dating back to 1800 in England.

Joins Arkansas Staff

FAYETTEVILLE, ARK.—The appointment of Dr. Donal P. Conway as assistant professor of animal industry and veterinary science was announced by Dr. John W. White, vice president for agriculture of the University of Arkansas.

Dr. Conway will conduct research studies in the field of parasitology. He replaces Hans J. Rothenbacher, who resigned in 1958 to continue graduate study.

A native of New Jersey, Dr. Conway is a graduate of Rutgers University and holds an M.S. degree from that school. He recently completed work for a Ph.D. degree at Cornell University. He served as graduate assistant at Rutgers from 1956 to 1958, and at Cornell from 1958 to the present. While at Cornell he assisted with teaching and research in the field of parasitology.

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profitable for everyone

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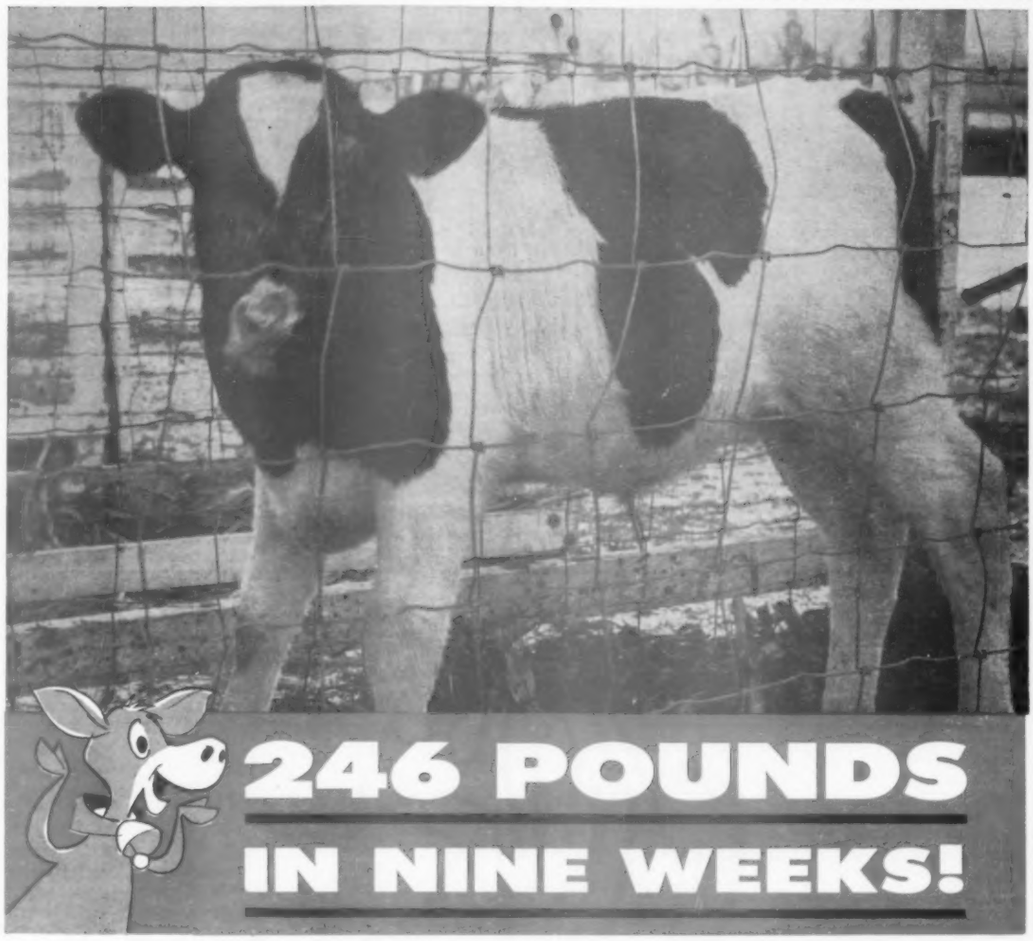


. . . and without feeding whole milk!

That's practically a *calf and a half* and it was raised entirely on the sensational new CALVITA VEALER and commercial starter. A freak? Not at all! All the calves raised on VEALER on the CALVITA test farm have the same plump, well-rounded conformation and all were sold at high market prices.

New CALVITA VEALER puts profit back into raising veal calves and opens a whole new field of profitable business for the feed dealer.

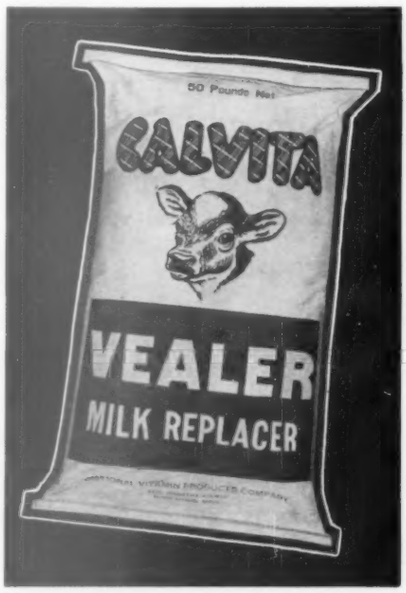
New CALVITA VEALER

Gives calf raisers an extra $20 (and more) per calf marketed

Authenticated records kept for over 2 years on the CALVITA test farm show that the average dairyman can raise bull calves on CALVITA VEALER and make an average net return of better than $37 per calf in seven to nine weeks over and above all feeding costs . . . over $20 more profit than if the calf had been sold at the usual 4 to 5 days of age.

Two-way dealer profit!

A dealer not only makes the regular profit on CALVITA VEALER (100 lbs. per calf) but also gets almost an equal amount of calf starter business. That's volume dealers are not getting now. Order CALVITA VEALER right away and cash in on this big, lucrative market that is waiting for you.



BACKED BY A BIG FARM ADVERTISING CAMPAIGN

WRITE FOR FULL INFORMATION

National Vitamin Products Co.

3401 Hiawatha Ave. Minneapolis, Minnesota

Less Laying House Space Satisfactory in Florida Test

By Dr. R. E. Cook
University of Florida

It has been recommended for many years that each light breed laying pullet be allowed around 3 sq. ft. of floor space. This recommendation has been followed for a long period and has become customary in the minds of most poultrymen. The guide upon which this recommendation was made was the condition of the litter. A poultryman was advised that he could vary his layer density up or down from the 3 sq. ft. allowance as long as the litter could be maintained in satisfactory condition, and as long as the pullets were not crowded to the extent that production was reduced.

Improved management and housing schemes have been developed and poultrymen have put more and more birds into the same area. The use of mechanical means of ventilation, slat floors and houses with the feeders, waterers and roosts over mechanically cleaned pits have eliminated the litter condition as a guide to determine layer density. Crowding beyond the recommendation space has been successful in houses equipped with these devices. However, the poultryman faced with tremendously reduced income per hen in recent years has frequently asked, (1) "How much can we crowd our layers in conventional litter pens and still make more profit per house or farm," or (2) "What percent decrease in production can you tolerate and still increase profits from the house or farm?"

TABLE 1. Percent Egg Production and Mortality of Pullets Housed with Different Floor Space Allowances

Floor space	No. pullets per pen	I		II		Total production	Mortality
		Confinement	Range	Confinement	Range		
3.5	34	72.3	68.7	65.4	64.6	67.7	4.41
3.0	40	70.4	68.5	70.3	66.1	68.8	3.75
2.5	48	64.7	64.3	57.6	65.6	63.0	3.13
2.0	60	63.6	63.3	68.9	69.4	66.3	4.85
1.5	80	64.5	66.8	60.5	64.3	64.0	6.87
		67.1	66.3	64.5	66.0	66.0	4.87

EDITOR'S NOTE: Tests at the University of Florida indicate that the amount of floor space for pullets may be reduced and still maintain satisfactory egg production. Dr. R. E. Cook, assistant poultry husbandman at the Florida station, Gainesville, Fla., reports on the work in the accompanying article. He notes that the crowding test is being continued and that various kinds of litter are being compared to see if the number of soiled and dirty eggs can be reduced in the crowded pens. This research was reported at the Florida Nutrition Conference.

A poultry producer with a given amount of housing space may increase the total income from the house by crowding the pullets, providing egg production is not seriously depressed as a result of crowding. Housing costs and production costs are steadily rising; thus any reduction in floor space will help compensate for increased costs of production and housing.

Several tests have been conducted at experiment stations throughout the country to evaluate the effects of crowding upon the performance of laying pullets. Results have been conflicting. The Iowa station (Nordskog, A. W., Poultry Tribune, Jan. 1959) reported results of three years of testing. These tests indicated that a 1% decrease in production and a .7 of 1% increase in mortality resulted for each square foot reduction in floor space allowance under the conditions of their tests (1.5, 2.5, 3.5 sq. ft.). The Georgia station (Driggers, J. C., Poultry Tribune, May, 1960), compared pullets housed, allowing 1.5, 2.0, 2.5, 3.0, 3.5 and 4.0 sq. ft. per pullet. One half of the pullets were debeaked and one half were non-debeaked. Large differences resulted in mortality between the debeaked and non-debeaked birds, but no large differences were noted between the pullets with various floor space allowances.

On the other hand, reports from the Pennsylvania and Nebraska stations (reported by J. M. Snyder, Profitable Management, Beacon Milling Co., Oct. 23, 1959), indicate reduction in production when the floor space allowances are reduced. In a 6½ month test the Pennsylvania station found nearly a two dozen difference in production between pullets housed at 1½ and 4.0 sq. ft. The Nebraska station reported a 7% decrease in production from pullets housed with one sq. ft. as compared to comparable pullets allowed 3 sq. ft. per pullet.

Florida Tests

Tests have been conducted recently at the University of Florida to determine the effect of crowding upon the subsequent performance of egg

Someone's not using Ray Ewing . . .

Fed up with your feed? Start using Ray Ewing's performance-proved Turkey Program. It's custom-tailored and field-tested for your customer's particular requirements. Finishes birds early and economically. As with all Ray Ewing products, *"Quality Goes In Before The Name Goes On."* That's why

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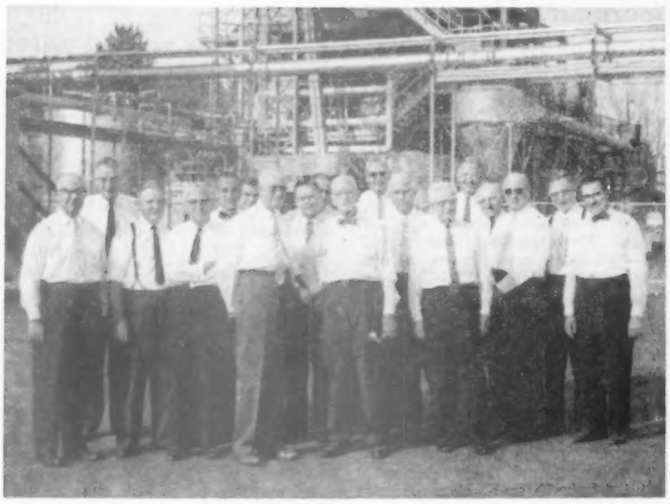

NEW SOYBEAN PLANT—A shirtsleeved group of executives and guests of Allied Mills, Inc., Chicago (right), inspected Allied's new soybean solvent extraction plant at Guntersville, Ala. (left). Midwestern soybeans are barged down the Mississippi and Missouri rivers and up the Tennessee River to the Guntersville plant. Allied's Wayne feed mill adjoining the soybean plant is one of the users of the processed meal, and crude oil is shipped to refineries. The plant was put into operation last summer and is now running about 40% over its rated capacity of 500 tons of soybeans per day, officials said. The plant consists of a three-story concrete slip form preparation and meal grinding building and an extraction area. The French Oil Mill Machinery Co., Piqua, Ohio, was awarded the "turnkey" contract for the plant. G. L. Levin, St. Paul, Minn., was the structural designer and consultant, and Ryan Construction Co. was the general contractor.

In the group picture are, from left to right (all are Allied Mills personnel except where noted otherwise): E. W. Lenz, president and chairman of the board of directors; Mr. Weldon, vice president, First National Bank of Chicago; Dr. J. E. Hunter, vice president and director of research; Mr. Bray, vice president, Harris Trust Co., Chicago; Mr. Heidrick, Peoria, Ill., director; J. D. Ellington, extraction plant manager; L. T. Murphy, director; L. M. Bolitho, secretary; Ed Buchanan, feed mill manager; F. A. Singer, engineering consultant; Harris Lyon, manager, soybean operations; Ed Griffin, director and vice president in charge of sales; Mr. Patten, director, and vice president of Commonwealth Edison Co., Chicago; E. B. Copeland, general manager, Guntersville plant; R. E. Clizbe, director, and former president, Clinton Sugar Refining Co.; F. H. Blough, vice president in charge of production; J. Bolton, Minneapolis, director, and Art Leitherer, traffic manager.

type pullets under practical conditions. The tests indicate that the amount of floor space may be reduced and still maintain satisfactory egg production. Pullets allowed 1.5, 2.0, 2.5, 3.0 and 3.5 sq. ft. per bird varied only slightly in egg production. The comparisons were made using 1,048 commercial White Leghorn type pullets that had been reared with one half the pullets in confinement and the other half having free access to range. The pullets reared in confinement and on range were housed in the same laying house with each group divided into pens with the various floor space allowances. The test was replicated so that each floor space allowance was represented two times with range reared and two times with confinement reared birds. The two replications of each group were placed with one on the north side and one on the south side of the building. Feeder space and nest space were equalized on an individual bird basis in all pens. All pullets were beaked at housing. The pens in this trial were started with approximately four inches of dry shavings for litter. The level of the litter was increased after three months to approximately six inches and was stirred on the average of once each week. The original litter remained in the house for the duration of the test and was not removed from any of the pens.

The results from the 11-month test are shown in Table 1 and indicate little difference in egg production between the various floor space allowances or the range and confinement reared birds. Both the range and confinement reared pullets came into production at about the same age and have laid at essentially the same rate. The mortality was very low in all pens for the entire period of the test, with no advantage being noted for any rearing method or floor space allowance. The most noticeable factor in the tests is the variation in litter condition between the pens with various concentrations of pullets. The pens with 1.5 and 2.0 sq. ft. per pullet soon became damp and caking was observed throughout the last half of the test. Along with the wet litter, the number of dirty eggs increased considerably. Slatted floors and mechanical pit cleaners may be necessary to completely eliminate these disadvantages of crowding.

These crowding trials are being continued in the present laying year. In addition, various kinds of litter are being compared to see if the number of soiled and dirty eggs can be reduced in the crowded pens.

Dr. Scott of Cornell To Study in Europe

ITHACA, N.Y. — Dr. Milton Scott, poultry scientist, Cornell University, has been granted a six-month leave of absence to speak and study in Europe, it was announced. He will leave the U.S. Jan. 29.

A major share of his time will be spent working with Nobel prize winner Henrik Dam in Copenhagen. The project concerns the relationships between vitamin E, selenium, and certain amino acids in preventing muscular dystrophy in chicks.

Dr. Scott's early speaking engagements include a Feb. 1 talk on turkey nutrition before a meeting of the British Turkey Federation. On Feb. 4, he will give two technical talks before the Swiss section of the World Poultry Science Assn. in Zurich.

Dr. Scott will be in Copenhagen Feb. 6 to June 1. He will spend June and July visiting poultry research laboratories in other parts of Europe.

Hog Production and Processing Plan Set

LUBBOCK, TEXAS — A new corporation has announced plans for a program which will include production and processing of Wessex Saddleback hogs, claimed to have a higher percentage of lean meat.

The firm, Universal Meat Processors, Inc., of Lubbock, is headed by Charlie E. Hall, president. He said the company plans to provide a "substantial premium" above top U.S. market prices for quality hogs.

The company is considering sites in Shallowater and Plainview, Texas, as a location for a packing plant, Mr. Hall said. It would have a capacity for processing 4,000 hogs per week. Farmers, he said, would be in the program under two contract plans, one for breeding animals and the other for meat production.

"After much experimentation, the company decided to encourage the raising of a breed from Scotland," Mr. Hall said. "This type hog, known as the Wessex Saddleback, has two more vertebrae than American hogs, which results in four more pork chops per animal.

"This hog has excellent feed conversion, a high litter average and a higher percentage of lean meat."

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Sturdy, low cost . . . a complete-unit animal production pen that's unbeatable for farrowing, lambing, calf weaning pen.

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JUST WHAT HOG FARMERS HAVE BEEN WANTING FOR YEARS! A round farrowing pen that will SAVE MORE BABY PIGS OUT OF EVERY LITTER because it (A) Lets sow respond to natural instincts (such as nesting) without restrictions; (B) Is safety-engineered with bonus features that give baby pigs greatest possible protection, especially from crushing.

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NEW, INGENIOUS WALSH ROTA-LOK CONSTRUCTION . . . heavy-gauge galvannealed steel panels hook and lock into steel legs without bolts. ERECT OR DISASSEMBLE ENTIRE PEN IN MINUTES. Panels fully adjustable in height from floor.

TODAY'S ONLY COMPLETE NURSERY PEN UNIT. A FULL LINE OF WALSH-DESIGNED ACCESSORIES: Special Walsh Twin Feeder-Waterer which adjusts up and down to fit size of animal; Pig retaining partitions made of all-steel or sturdy wood panels (both provide openings directly in front of Nursery Pen door for easy passage, cleaning and feeding); Heat lamp; Baby pig feeder and waterer; Automatic hog waterer for use with pressure water systems.

Walsh Nursery Pens are available in STANDARD and LARGE sizes. Built to last for years. Priced to fit every pocketbook. GET DETAILS TODAY.

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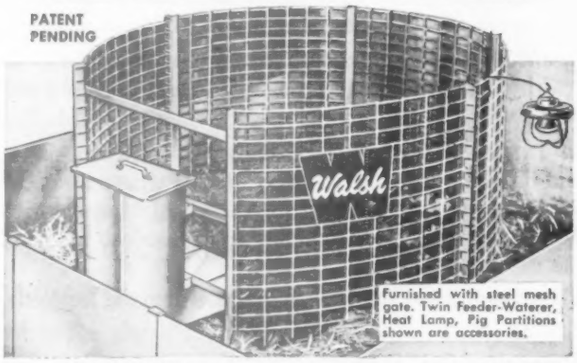

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Moorman Mfg. Co. Names New Officers

QUINCY, ILL.—New officers of the Moorman Manufacturing Co. advisory board recently elected are as follows: Chairman, James M. Leathers, office manager; vice chairman, A. J. Wilson, assistant accounting department manager, and secretary, Carl W. Sturhahn, market reseach manager. These men will serve until their successors are elected in the annual meeting, January, 1962.

Members whose terms of office expired were Dr. M. J. Caldwell, assistant director of research and nutrition research manager; V. W. Cory, manager of market exploration and development, and O. W. Randolph, manager of personnel and public relations.

Welcomed at the first meeting of the new board were the three newly elected members: R. K. Elmore, personnel manager; A. J. Gehrt, quality control maanger, and J. M. Wooldridge, manager purchasing department. Mr. Elmore is starting his third term as a member of the board; Mr. Gehrt and Mr. Wooldridge have never served before.

DEEDS FEED MILL

TIFTON, GA.—Mrs. Ethel Flanders, Tifton, has deeded Flanders Feed Mill building, land and equipment at Tifton to her son, Henry Flanders, Daytona Beach, Fla. Bill Corbett, who will remain as manager of the feed manufacturing concern, said there will be no change in operations or marketing. He said the mill may be expanded at some time in the future, but no definite plans have been made. Feeds are manufactured under the brand name of "Flanders Feeds." The mill was established by Lewis Flanders, who died in 1960.

Dr. Krider to Conduct Soybean Study Abroad

FT. WAYNE, IND.—Dr. J. L. Krider, vice president of Central Soya, Ft. Wayne, will leave for Europe soon to make a study of market development operations of the Soybean Council of America, Inc., it was reported.

Dr. Krider will make a survey of the over-all program as it is set up in all countries in an attempt to uncover its strong and weak points and to make recommendations for any needed changes.

On a six-month leave from Central Soya to the council, Dr. Krider will go to Rome early in February. He will be stationed in the Rome office of the council during the period of the survey.

Dr. Krider has made two previous trips abroad on assignments for the council, the latest during the summer of 1960.

CONGRATULATIONS—Giles A. Coors, Jr. (left), Fred Lovitt & Co., newly-elected president of the Memphis Board of Trade, receives best wishes from Harry D. Tobias (center), retiring president, and Harold Sullivan, loser in the annual election.

Giles A. Coors Heads Memphis Exchange

MEMPHIS, TENN.—Giles A. Coors, Jr., Fred Lovitt & Co., was elected president of the Memphis Board of Trade recently. He succeeds Harry D. Tobias, Goldenrod Oil Meal Sales Co.

Mr. Coors won the 79th annual election for the presidency over Harold Sullivan of the Sullivan Sales Co. Generally, the vice president steps up to the top position. However, in 1960, Mr. Coors and Mr. Sullivan figured in the first tie for vice president in the 78-year history of the Board of Trade.

Elected vice president was Leonard F. Dienell of Allied Mills, Inc.

Directors chosen were Mr. Tobias; W. R. Flippin, Buckeye Cellulose Corp.; Jack Z. Gordon, Continental Grain Co.; H. Maney Heckle, Heckle Brothers; Cary Humphries, Cargill, Inc.; W. K. Martak, Southern Cotton Oil Co.; James W. Phelan, Mitchell, Hutchins & Co., and H. O. Toler, H. O. Toler, broker.

Fred Rivalto, who became general manager about six months ago, cited 1960 as another successful year in his first report to the membership, although he called protein meal futures trading disappointing.

"The grain inspection department handled a large volume of inspections," said Mr. Rivalto, "despite being slightly less than the previous year. Last year definitely can be classed as an excellent one for the department."

Mr. Rivalto announced that the new inspection department building on Presidents Island will be completed by Feb. 15. He termed it the most modern in the country.

As to protein oil meal trading, Mr. Rivalto remarked: "We are holding on in the hope that soon the supply and demand will be more nearly balanced and futures markets again will take their rightful place in the scene of merchandising."

Entertainment for the program was arranged by Lloyd Burgen and members of his entertainment committee.

Former Secretary of Feed Institute Dies

DES MOINES—Albert Guggedahl, 65, died of a heart attack here recently. He retired in September as secretary of the Feed Institute, Inc., the position which he had held the past eight years.

Mr. Guggedahl is survived by his wife, Bernice; two daughters, and a son.

Serpasil® Premix—the only feed additive that shields poultry against stress

SERPASIL® (reserpine) is the only available medicament that acts directly on the sympathetic nervous system.[1] Incorporated in SERPASIL Premix, this active agent actually shields birds against the causes of stress: heat, cold, crowding, debeaking, vaccination, caging, spraying.

In chicken feeds SERPASIL promotes adaptation to stressful conditions. Chickens remain calm, healthy . . . maintain high levels of feed efficiency and egg production during those periods of stress which cause heavy losses of eggs and birds.[2-6]

In turkey feeds SERPASIL shields the bird against aortic rupture[7-10] by lowering blood pressure and buffering against stress. In flocks where an outbreak is in progress, 1 ppm. SERPASIL in the feed controls mortality within 2 days. In lower concentrations, it serves to prevent outbreaks. Poults fed 0.2 ppm. SERPASIL from 5 weeks of age until marketing generally remain free of the disease.

Plan now to meet the coming season's demand for feeds containing SERPASIL.

References: 1. Plummer, A., Gaunt, R., and Belloff, G.: CIBA Research Laboratories. 2. Couch, J. R.: First Conference on the Use of the Tranquilizing and Antihypertensive Agent SERPASIL in Animal and Poultry Production, College of Agriculture, Rutgers, The State University, New Brunswick, N. J., May 7, 1959. 3. Weiss, H. S.: *ibid.* 4. Burger, R. E.: *ibid.* 5. Gilbreath, J. C.: *ibid.* 6. Parker, E. L.: Second Conference on the Use of Reserpine in Poultry Production, The Institute of Agriculture, University of Minnesota, St. Paul, Minn., May 6, 1960. 7. Ringer, R. K.: *ibid.* 8. Waibel, P. E.: *ibid.* 9. Morrison, W. D.: *ibid.* 10. Carlson, C. W.: First Conference, etc.

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PRECISION GENETICS

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PROJECT ENGINEER — CONSTRUCTION and engineering corporation in Georgia has opening for an experienced engineer with thorough knowledge of feed mill and grain elevator layout and design and field experience in construction. Capable of meeting clients, determining their requirements and follow up and coordinate all phases of a project from preliminary layout through construction. Address Ad No. 6524, Feedstuffs, Minneapolis 40, Minn.

MARKETING DIRECTOR — TECHNICAL man with M.S. or Ph.D. in nutrition. Must be strong in sales to work with salesmen on national basis. In progressive selling organization. Address Ad No. 6556, Feedstuffs, Minneapolis 40, Minn.

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Modern feed manufacturing plant in highly populated livestock area. Midwestern state. Has profitable established business with excellent growth potential. **Business, buildings and equipment priced at $90,000.** Address ad No. 6572, Feedstuffs, Minneapolis 40, Minn.

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WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P.O. Box 574, Jefferson City, Mo.

FOR SALE—ENCLOSED MOTORS; RICHardson scale; truck scales; hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

150 BU./HR. DRIALL CONTINUOUS FLOW grain drier, electric motors, fans, burner and conveyors. PAMCO, Inc., Oskaloosa, Iowa.

1959 LIKE NEW CHEV. 1½ TON TRUCK. Hoosier bag-bulk body 9 ft. with hoist-reversible augers, 17" Gell hammer mill ¾ ton mixer on 1942 Ford truck. 1948 motor. Three 8-10 ton Powerscoop bulk bins complete with augers, 110-220 motors. Del a Feed Service, Milford, Ill.

ONE TON FEED MIXER, UPRIGHT BElow floor model, with 5 H.P. electric motor, $500. Roller mill with extra set rollers, with 5 H.P. motor, $350. One Clipper cleaner No. 995 with ten extra screens, $600. Foster E. Baird, Salem, N. M.

FOR SALE — USED ONE TON SPROUT-Waldron horizontal mixer, pit sheller, 5 H.P. air system, 4½ bu. Richardson grain scale, 300 lb. General pre-mixer, Peerless roller mill, 15-inch belting and buckets, screw driver gear case for 2" shaft, 12" auger, 14,500 Union Special heads and suspensions, Metropolitan sewing head, Safelex square-D disconnects, flat pulleys, bagging bins, spouting and elbows. Winborns Mill Equipment Service, Williamsburg, Iowa.

CAR UNLOADER COMPLETE WITH cable and scoop, $300. Richardson automatic scale G-38 with motor, $700. Napoleon Alfalfa Mills, Inc., Napoleon, Ohio.

SEMI BULK FEED TRAILER WITH SIX compartments with a Pakmaster bulk unloading system powered with Wisconsin engine. Reaches 27 ft. in air. All hydraulic. Complete outfit $1,500. Napoleon Alfalfa Mills, Inc., Napoleon, Ohio.

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WANTED TO BUY — RICHARDSON Scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

FRENCH OR DAVIDSON-KENNEDY SOYbean conditioner, good operating condition, all plate-steel construction, six high 50" to 90" diameter super-imposed, steam jacketed kettles about 30" deep, complete with vertical shaft and 220/440-3-60 TEFC motor drive assembly, kettle ring jackets to carry 150 lb. psi steam pressure. With or without motor. State full details and price f.o.b. present location. Address Ad No. 6530, Feedstuffs, Minneapolis 40, Minn.

100 H.P. OR 75 H.P., 900 R.P.M. OR 1,200 R.P.M. Open 3-phase, 60/220 or 440 volt motor. With or without starter. Arid Aire dryer — price and condition write Power Protein, Inc., Box 306, Troy, Ohio.

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MOBILE MILLS, NEW, USED AND FACtory rebuilts. Complete with grinder, mixer, diesel, molasses. Financing available. Iowa Portable Mill Co., Oelwein, Iowa.

FOR SALE—USED PORT-O-GRIST MObile feed mill. Write 427 West Lemon St., Lancaster, Pa., or call Lancaster, EXpress 7-2774.

COMPLETE FEED PLANT MACHINERY liquidation Topeka, Kansas. Including: 100 H.P. Wenger multi-duty hard pellet installation complete; 100 H.P. series "100" Wenger soft pellet installation complete; series "700" Wenger molasses mixer complete; 28" Waldron pneu-vac unloading system; 6x60 Sprout-Waldron crumble roll; Bemis series 6109-15 sacker scale and sewing machine; many other items—all in A-1 condition (some only one year old). Call or write: General Mill Equipment Co., 2021 Pennsylvania, Kansas City, Mo.; GR 1-2454-55.

FOR SALE—CARTER DISC SEPARATOR 24-27; 10 bu. grain scale, in original crate; 3 ton Eureka horizontal mixer with 40 H.P. motor and drive. J. E. Hagan Mill Machinery, Hwy. 50 West, Jefferson City, Mo.

FOR SALE — PELLOMATIC STEAMLESS pellet mill; 35 H.P. T.E.C. motor, automatic controls, assorted dies. Ideal for large feeder or small mill. Tribune Grain, Inc., Tribune, Kansas.

FOR SALE—WHIZZER BAGGING CONveyors, Richardson scales, Union Special, Fischbein sewing heads, one to seven ton square bins, welded spouting and elbows. Winborns Mill Equipment Service, Williamsburg, Iowa.

PRICED FOR QUICK SALE — SPROUT-Waldron 2-ton vertical mixer. General Mills, Inc., Stein Highway, Seaford, Del; Phone NA 9-9085.

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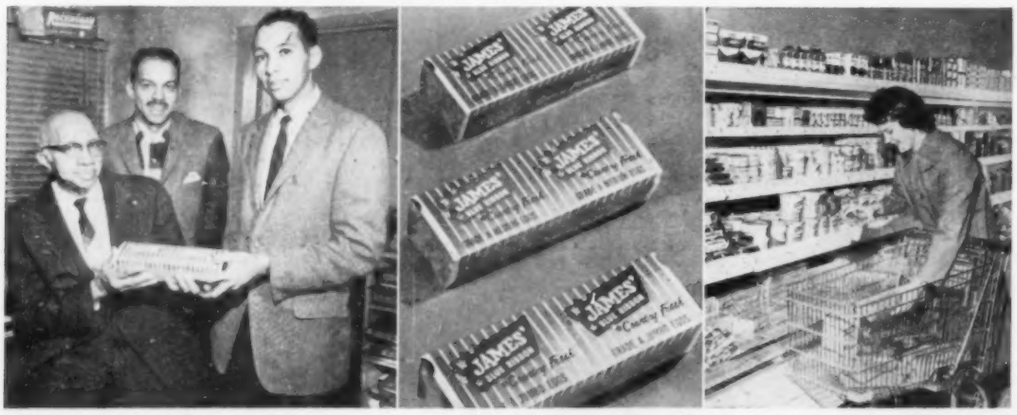

OVERWRAPPED EGGS—Among the firms now using a cellophane overwrap for egg cartons—a relatively new development—is the James Produce Co., Charleston, W.Va. E. L. James, Sr., seated on desk, in the photo at the left, vice president of National Poultry, Egg & Butter Assn. and owner of the firm, says "overwrapping our eggs in cellophane has given us talking points on freshness and flavor protection which the market owners can pass on to their customers." With him are his sons, E. L. James, Jr., center, and C. L. James, II, right. Center photo shows cellophane overwrapped cartons. James Produce leases its overwrapping machine from Cello-Pak Corp., Charleston, which also provides marketing, advertising and merchandising services on a shared cost basis with its clients. In the photo at the right, Mrs. Marilyn Burke, shown shopping at a Charleston Valley Markets store, picks up a carton of James eggs. The James Produce Co., a third generation firm, sells about 66% of its 1,000 cases per week in cartons and is now overwrapping all cartons with Avisco cellophane.

'Hoosier Turkey Trot' Set for Jan. 31-Feb. 1

LAFAYETTE, IND.—The 17th annual "Hoosier Turkey Trot" will be held Jan. 31-Feb. 1, in the Memorial Union, Purdue University, Lafayette.

The two-day program includes two panel discussions, one pertaining to management and another to disease control. Members of the management panel include Dr. J. Holmes Martin, head, Purdue poultry science department; John Bergdoll, Allied Mills, Inc., Indianapolis; Dr. J. M. Tufts, Ralston Purina Co., St. Louis; Dr. T. T. Milby, Larro Research Farm, Indianola, Iowa, and Dr. Eugene Nicks, McMillen Feed Mills, Decatur, Ind.

Other activities include a report on National Turkey Federation activities, insurance, outlook for Indiana turkey products during the next five years, banquet and entertainment and business meetings.

Oregon Agriculture Proposals Scheduled

SALEM, ORE. — The Oregon Department of Agriculture reports that it will submit to the 1961 Legislature a number of proposals for legislation aimed to cover "loopholes or inconsistencies" in present law.

The department is asking for more authority to step up its program of auditing warehouses. This came about as a result of two warehouses defaulting in obligations to farmer depositors, it was reported.

The agriculture department also seeks a complete revision of the Oregon commercial feeds law to conform with model acts of the federal government and the Association of Feed Control Officials. The revisions sought by the department would put Oregon on a cooperative basis with other states.

Dr. P. Lindenmaier to L&M Laboratories

SELBYVILLE, DEL.—Dr. Paul R. Lindenmaier, Millsboro, Del., has been appointed to the scientific staff of L & M Laboratories, Selbyville, Del. He will work as a pathologist in the diagnostic laboratory at Selbyville and will also cooperate on certain poultry research projects with L & M's research personnel at the Berlin, Md., plant.

Dr. Lindenmaier received his D.V.M. degree from the New York State Veterinary College, Cornell University, in 1959 and was also granted an M.S. in avian physiology at the same time. Before entering veterinary school, he obtained a B.S. in agriculture from Cornell. Prior to joining L & M, Dr. Lindenmaier was employed by Delaware Poultry Laboratories in Millsboro.

Dairy Meeting Set

BOSCAWEN, N.H.—The fifth annual New Hampshire Herd Health Conference to be held here Feb. 6 will have as its theme, "Milking Procedures and Mastitis Control."

The meeting, to be held in the town hall here, is sponsored by the University of New Hampshire department of dairy science and extension service. Registration is to start at 10 a.m. with the program slated to begin at 10:30.

Speakers and their topics include: Dr. W. E. Petersen, University of Minnesota, "The Form and Function of the Cow's Udder as Related to Mastitis Control"; Lyall Conde, Conde Milking Machine Co., Sherrill, N.Y., "Milking Machine Care and Mastitis Control," and Dr. H. G. Hodges, DeLaval Separator Co., Poughkeepsie, N.Y., "Milking Procedures and Mastitis Control."

Another feature of the conference will be a panel discussion on "Milking Procedures and Udder Health."

Feed Procurement Event Is Feb. 13-16

MILWAUKEE — The annual Feed Procurement Conference, aimed at bringing together feed mill purchasing agents and feed ingredient suppliers will be conducted again, as in past years, at Sun Valley, Idaho, Feb. 13 through Feb. 16, it was announced here.

Sessions following a program to be announced Feb. 13, the first day of registration, will be held in the Challenger Inn at Sun Valley. The program is to include the presentation of papers and exchange of ideas.

Conference organizers reported that anyone interested in attending the event should arrange for reservations immediately through George La Budde, La Budde Feed & Grain Co., 741 N. Milwaukee St., Milwaukee 2, Wis.

Name Dawe's Foreign Unit General Manager

CHICAGO—Appointment of Lawrence W. Kendrick as general manager of Dawe-Lepetit, S. p. A., Milan, Italy, has been announced by Dr. Morris Erdheim, director of the international division, Dawe's Laboratories, Inc.

In his new position, Mr. Kendrick will have over-all responsibility for Dawe-Lepetit's Milan technical service and sales office, as well as its manufacturing facilities at Torre Annunziata. His appointment is part of the growth and development program of Dawe-Lepetit, which recently moved into expanded offices in Milan, said Dr. Erdheim.

Dawe-Lepetit is a joint venture subsidiary of Dawe's Laboratories, Inc., formed in cooperation with Lepetit, S. p. A., an international pharmaceutical firm headquartered in Italy. Dawe-Lepetit produces nutritional and animal health products for distribution in Europe and the Middle East.

Poultryman Named

BATON ROUGE—Appointment of Dr. Harry Hathaway to the position of associate poultry specialist by Louisiana State University Agricultural Extension Service has been announced. He was named to fill a staff vacancy caused by the death of Clyde Ingram.

Dr. Hathaway received his B.S. degree from Oklahoma A&M College and his M.S. degree from Michigan State University. His Ph.D. degree was earned at Louisiana State University.

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Youth Encouragement Contest Deadline Feb. 1

SHERBURNE, N.Y. — Entries for the fifth annual Eastern Federation of Feed Merchants Farm Youth Encouragement Contest for dealers must be declared by Feb. 1, according to Austin W. Carpenter, federation executive director.

The contest is aimed at motivating feed suppliers to inaugurate and carry through on a season's program built to stimulate the interest of agricultural minded young farm men and women in pursuing farming as a life vocation.

The 11-state area covered by the activity of the federation is, for the purpose of the contest, divided into four zones, namely, New England, New York, Pennsylvania-New Jersey, and Delaware-Maryland. The dealer winning the contest in each of these zones receives a trophy award and $100 in cash toward paying his expenses to the annual convention of the federation at the Concord Hotel, Kiamesha Lake, N.Y., June 12-13.

Sponsor for the awards is the National Molasses Co., Oreland, Pa.

L. E. Linaberry Joins Elevator Supply Firm

SAGINAW, MICH. — L. E. Linaberry, Westfield, Wis., has joined B & W Elevator Supply Co., with headquarters at Hopkins, Minn., to sell and service A. T. Ferrell's "Clipper Line" throughout Wisconsin.

L. E. Linaberry

Mr. Linaberry is no stranger to Wisconsin, having called on the seed and feed trade for the past 12 years. His background includes employment with Cargill, Inc., and the seed division of Teweles Seed Co., Milwaukee.

In addition to Clipper cleaners, dryers and related machinery, Mr. Linaberry offers equipment and service for all types of feed mills.

U.S. Steel Announces New Swine Movie

PITTSBURGH — U. S. Steel announces the availability of a new film, "Modern Trends in Swine Production," an educational movie on life-cycle swine management.

The film concerns sound principles in breeding and feeding on the farm, according to U. S. Steel's Frank J. Reynolds, industry manager of agriculture. He said that "proper management techniques used during farrowing will insure strong, healthy and fast-doing pigs."

The 16-minute color film is narrated by Bernard Ebbing, national authority on hog raising and breeding.

The film reviews farrowing, nursery and finishing practices for raising hogs in confinement and on pasture.

The movie is available for showings without charge through: U. S. Steel Corp., Pittsburgh Film Center, 525 William Penn Place, Pittsburgh 30, Pa.

NEW TEXAS FEED MILL

GARLAND, TEXAS—The Garland Grain Co. will begin operation of a new feed mill and cattle feeding lot in January, making it the largest such combined operation in the state, according to Irby Rankin, vice president and manager. The entire 100-ton-per-eight-hour-day output of the mill is expected to be used for feeding cattle in the firm's lot which occupies 85 acres. The lot will accommodate 3,000 head, with expansion to 8,000 head anticipated.

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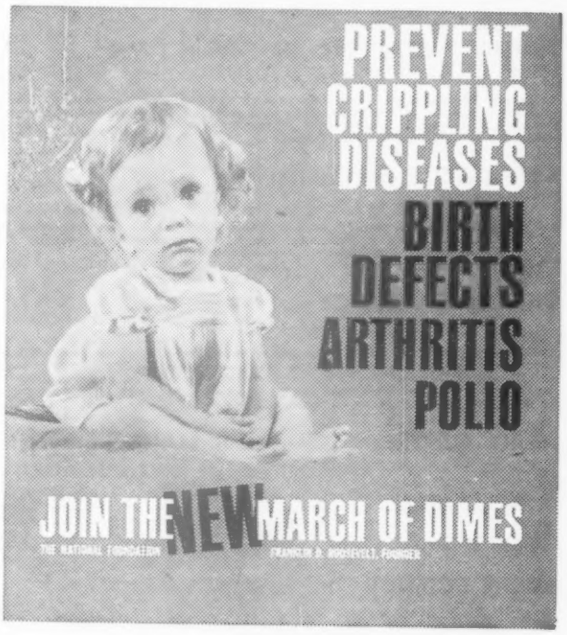

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Drop in Egg Prices Apparently Checked

Egg prices leveled off this week in most markets of the nation after dropping as much as 15¢ doz. since the outset of the new year.

This week's wholesale shell egg prices in New York were generally 1@4¢ lower than a week ago, but at Chicago and in Iowa prices were about the same as a week earlier. In fact, Iowa's at-the-farm prices showed slight strength.

Most of the blame for the egg-price drop during the initial weeks of the new year was placed on adverse weather conditions which delayed movement from the Midwest to the New York market. Observers said the held-up eggs were eventually dumped on the New York market all at once and wholesalers there couldn't handle the great volume.

W. J. Arnold Named Hubbard Official

MANKATO, MINN. — Election of Walter J. Arnold as vice president of Hubbard Milling Co. has been announced by C. B. MacLeod, chairman of the board, following a recent meeting of the company's board of directors.

Mr. Arnold, who has been general plant superintendent, also has been given full responsibility for production in the flour mill and feed plants at Mankato. In addition, he has charge of engineering and maintenance in the branches at Cedar Rapids, Iowa; Springfield, Ill., and Marion, Ind.

Mr. Arnold's lifetime career in milling began in 1923 when he was employed by the Big Jo Flour Mills at Wabasha, Minn. He remained with Big Jo until 1940 when he went to the V-O Milling Co. at Los Angeles, Cal. After three years in California, he returned to the King Midas Mill at Hastings, Minn.

In 1945 he came to Hubbard Milling Co. at Mankato as superintendent of the flour mill. Later, he became superintendent of feed operations and recently was named general superintendent.

Firm's Stockholder Admits Embezzlement

SHELDON, IOWA—An Iowa manufacturer of enzyme additives for poultry and livestock feeds has been drawn into an investigation which surrounds a principal stockholder who this week admitted embezzling more than $2 million from the Sheldon (Iowa) National Bank.

Newspapers gave national publicity to the fact that the alleged embezzler, Mrs. Burnice Geiger, cashier and daughter of the bank's president, owned 130,000 shares in Northern Biochemical Corp., Sheldon.

NEW CALIFORNIA FIRM

BEVERLY HILLS, CAL. — The Canyon Feed & Rendering Corp. has filed articles of incorporation to operate as a livestock raising firm with 2,500 shares of no-par stock. Incorporators are Arthur Livingston, Sol Davidson and Dora Green.

INDIANA

(Continued from page 1)

Fischbach, Lochiel (Ind.) Elevator Co.

THE GRAIN AND FEED BUSINESS IN THE '60's—The lowering of grain storage rates last March by the U.S. Department of Agriculture and the effect of the Food and Drug Administration on the feed industry were the main points of a talk given by C. S. Force, Kalamazoo, Mich., president, Grain & Feed Dealers National Assn.

Mr. Force said that he has been attending the joint meetings of representatives of the Grain & Feed Dealers National Assn. and the American Feed Manufacturers Assn. with a committee from the FDA on the responsibility of feed dealers and manufacturers to the FDA regulations. He said, "I feel now that I have a much better understanding of the regulations but I don't know how our industry can live with them."

He said that FDA is likely to move in on any dealer with warning, seizures and prosecutions involving: The grandfather clause or prior sanction, New Drug Application for a dealer or any dealer mixing concentrates or premixes with a new drug, clean wheat, treated seed, pesticide residue and molds.

He said, "I would like to urge you to know more about how Food and Drug can affect your business. It is very far reaching and can be a serious problem to you in many ways."

Mr. Force told of the problem in the southeastern states with crotalaria seed and the fact that FDA has taken action on 38 cars of soybeans in the last two months. He said that the National Grades Committee had recommended to USDA that crotalaria be placed on the U.S. Grading Certificate with certain tolerances and be graded as sample grade. Mr. Force stated that this has been done and will be effective Feb. 6.

On the subject of storage rates, Mr. Force said that no one, at present, knows what the future grain storage rate will be. He said that a task force is gathering information for a renegotiation when the industry feels that the opportunity is right. He commented that it must be remembered that the industry will be dealing with new people in USDA now.

Turning to other topics, Mr. Force said that a major problem for small feed dealers and country elevators is the need for operating and growth capital. He stated, "Every elevator operator, feed mill and country warehouseman will be interested in legislation before Congress that has been endorsed by GFDNA, which would allow businessmen, both large and small, incorporated or unincorporated, to retain part of their earnings for growth expansion."

He said this legislation, the Ikard-Curtiss-Sparkman Tax Adjustment Bill, would allow elevator operators and other businessmen to retain up to $30,000 or 20% of their gross income whichever is larger. "This means you can buy another truck, grinder, feed mixer, grain cleaner, etc., from your gross profit before paying your income tax," Mr. Force emphasized.

Mr. Force said that the group's national committee met recently with a panel of USDA veterinarians to discuss the study to be made regarding the extent of transmittal of disease or pathogens through feed products and feed mills. "There is proof that many livestock and poultry diseases are spread through this medium. Our country has many problems that will affect our facilities and our type of operations."

He said, "As the public becomes more and more interested in the regulatory agencies of government and the origins of food and feed products it will take the alertness of your national association to see that such regulations make sense and are workable, at the same time seeing that the public receives clean, wholesome food products."

HOW FARMERS CHOOSE THEIR FEED DEALERS—Dr. R. L. Kohls, Purdue University, told the group of research he conducted along with H. F. Krueckeberg on feed buying activity. The two men found that farmers tend to buy their feed from one source which is close by and have a limited concept of sources available to them.

The research shows that farmers are rather loyal customers once they have chosen where to do business. It was also found that feed business is not too closely linked to other types of activity such as selling grain or purchasing other kinds of supplies. Dr. Kohls said that these facts indicate that the feed business must stand on its own feet and to substantially expand a trade territory of a particular dealer it will take considerable effort to offset the farmers' apparent "proneness to nearness."

Dr. Kohls also said the study shows farmers tend to have a limited knowledge of the various aspects of their particular dealers' operation. In fact, though dealers believe there is considerable difference between themselves and their competitors, farmers hold the picture that various feed dealers are just about alike in most ways.

He commented that the farmer's most widely used sources of feed information are not directly connected with the feed dealer or manufacturer. These facts indicate either that most feed outlets are about similar in their competitive operations to each other, or if they are different, little impact has been made on farm customers. If dealers believe they have something unique, they cannot assume that this information is automatically transferred to customers, the researcher reported.

Though evidence is not clear, according to Dr. Kohls, there is a high degree of loyalty in farmer purchasing apparently to a particular location rather than management or product (brand). Price was not high in the "reasons for choosing," but an outlet apparently would lose customers if the prices were "out of line," the Purdue researcher commented. He said that dealers who place all their merchandising efforts on one particular factor (price, credit, service or brand) apparently will be missing many potential customers.

Also shown is the fact that the size of the customer has effects on his behavior and rationale. Larger farmers travel further in purchasing feed, have greater knowledge about the operations of their dealers and believe there is more difference among them, the report shows. These farmers apparently put less stress on location as such and more on price, service and other issues, the Purdue researcher said.

Thus, he recommended that dealers appraise both the kind of farmers in their area and the changes that are taking place in farm operations if they are to compete effectively for their business.

USDA SPEAKER—Martin Sorkin, assistant to the secretary, U.S. Department of Agriculture, stated in his address entitled "Future Role of the Federal Government in Agriculture":

"Over the past several years, you and I have been witness to the most dramatic increase in storage capacity, and need for such space in history.

"Between Jan. 1, 1955 and Jan. 1, 1960, we saw USDA storage capacity more than double to 4.2 billion bu. At the same time, CCC-owned grain in these storage facilities tripled. The trend of commercial facilities construction and CCC ownership of grain is still upward," Mr. Sorkin reported.

He said that "last spring, several local areas, after building up considerable new facilities, found only small supplies of grain to occupy their storage space. Since then the problem has made a complete reversal and we may expect a rather tight situation in most of the major grain producing areas.

"It would appear," said Mr. Sorkin, "that off-farm grain storage facilities will need to be increased in the near future. In appraising the implications of this statement, it would seem judicious to consider the long-term interests of this great industry in your relations to the government."

Mr. Sorkin also told of the value of the "Food for Peace" program. He reported progress in the government's rural development program, stated that the school lunch program creates increasingly significant opportunities in market development for food, and cited possible future Federal Drug Administration action pertaining to the clean wheat and corn programs.

PRESIDENT'S ADDRESS — Gene Byer, president of the Indiana Grain & Feed Dealers Assn., speaking on reduced storage rates, said: "I cannot see how we can expect the Commodity Credit Corp. to raise the reduced rates when under them our membership continues to erect additional storage and some of our members shell, haul corn for nothing, or pay bonuses, or use some other gimmick to get storage filled.

"For those who have erected unwarranted storage, the bumper crops of 1959 and 1960 have been a Godsend," he said.

Mr. Byer told members that "we must support our state and national associations to the hilt in order for us to compete in the rough and tumble of pressure groups affecting our livelihood."

Referring to a recent meeting of the education and public relations committee of GFDNA in Chicago, he said: "I got the feeling that our industry is not getting our story to the public. We are a minority group in the doghouse with the consuming public particularly in regard to grain storage and feed additives."

SECRETARY'S REPORT — Fred K. Sale, executive secretary of the Indiana Grain & Feed Dealers Assn., told members that the USDA hearing at Kansas City on proposed changes in the Uniform Grain Storage Agreement was merely a formality.

"Our testimony was not given much consideration, if any, for reasons known to all of you," he said.

"The grain industry must maintain its solidarity. Detailed and accurate figures on the handling and storage costs of government grain must be kept, and all should be prepared to again put up a united front when the agreement comes up for negotiations again," Mr. Sale stated.

He reported that the association's present membership stands at 989.

CONVENTION RESOLUTIONS—Resolutions passed by the convention included a request by the group that the Food and Drug Administration and federal health authorities and state Food and Drug officials keep the association closely advised as to any proposed changes in the usage or administration of chemicals or feed additives so that members may be informed.

It was also resolved that the association should continue to cooperate with FDA and Purdue University to improve sanitation conditions under which grain is received and handled and to bring to the attention of farmers the serious consequences of grain contamination.

The secretary of the association was requested to inform the Indiana congressional delegation that the members favor legislation to close tax loop holes favoring "non-profit organizations which are earning profits in the same way as private or stock companies."

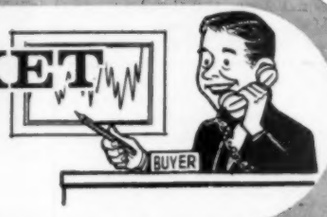
Members also went on record as opposing extension of coverage of the Fair Labor Standards Act to the grain and feed industry. It was also asked there be further definition of the "area of production" exemption to include the areas from which grains are assembled from producers.

It was resolved that the group go on record to make every effort to furnish facts and financial support to trade members who are presenting the independent warehouseman's responsibilities under existing government surplus storage contracts to the Commodity Credit Corp. and any committees interested in obtaining the true picture of grain storage and that it favors the continuation of the present Uniform Grain Storage Agreement with CCC.

The group went on record favoring the U.S. House Bill No. 2 and Senate Bill No. 2 known as the Ikard-Curtis-Sparkman Tax Adjustment Bill. The secretary was instructed to notify the Indiana Congressional delegation and ask support for these bills.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS



NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Boston: Demand and supply steady; 400 D, 3,000 A 19½¢ lb.; 300 D, 3,000 A 19¢; 300 D, 2,250 A 17½¢; 300 D, 1,500 A 16¢; 300 D, 750 A 14¢; 75 D, 750 A 13½¢.

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Minneapolis: Demand fair; supply ample; 10,000 A 31¢ lb.; 300 D, 2,250 A 17½¢ lb.; 300 D, 1,500 A 16¢ lb.; 300 D, 750 A 15⅝¢ lb.

Denver: Demand fair; trend steady; supply good; 21¢ lb.

ALFALFA MEAL

Omaha: Demand fair; trend steady; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $44; sacked meal $49, Omaha basis.

Boston: Demand steady; supply adequate; dehydrated, 17% $65; suncured, 13% $46.60, both sacked.

Ft. Worth: Demand fair for dehydrated, slow for suncured; supply sufficient; sacked: dehydrated, 17%, 100,000 A $57.10, truck or rail; suncured: 13% ¾-in. grind No. 1 $47, truck; 15% fine ground, dry $49, with 2% fat added $51, rail or truck.

Los Angeles: Demand and trend steady; supply adequate; dehydrated meal, 17% protein, 100,000 A $52@53, nominal; dehydrated pellet meal, 17% protein, 100,000 A $54@56, nominal; suncured meal, 15% protein $45@46; suncured crumbles, 15% protein $47@48.

Philadelphia: Demand and supply fair; 17% dehydrated $63.50.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $53@55.

Minneapolis: Demand fair; supplies ample; market steady; 17% dehydrated, 100,000 units vitamin A reground pellets $51, delivered Minneapolis; oiled reground pellets $53.

Chicago: Demand and supply fair; trend slightly higher; dehydrated, 17% protein, 100,000 units vitamin A $48.

Denver: Demand fair; trend steady; supply ample; $46.

Seattle: Demand fair; trend firm; supply good; 15% protein suncured $51, 150,000 A unit dehydrated $72, both delivered truck loads, sacked.

Kansas City: Demand fair; trend steady; supply ample; 17% dehydrated alfalfa, 100,000 A on arrival, pellets $45@48, reground pellets $46.50@49; 18% dehydrated alfalfa, 125,000 A on arrival, pellets $47@51, reground pellets $48@52; 20% dehydrated alfalfa, 150,000 A on arrival, pellets $50@53, reground pellets $51@54; suncured alfalfa, demand slow, supply adequate, 13% pellets $35@37, No. 1 ¼-in. $40, sacked.

Buffalo: Demand fair; trend steady; supply fair to good; $65.60, sacked, Boston.

Memphis: Demand fair to good; trend steady; supply ample; dehydrated, 17% protein, guaranteed 100,000 units, vitamin A $52; reground pellets $53.

St. Louis: Suncured, 13% fine, sacked $45; dehydrated, 17%, 100,000 A pellets, demand slow, trend steady, supply ample, bulk $48.50.

Portland: Demand fair; trend steady; supply adequate; $46@73.

ANIMAL FAT (STABILIZED)

Boston: Demand and supply steady; tallow 6¼¢ lb.; yellow grease 5½¢ lb.

San Francisco: Demand fair; supply ample; bleachable fancy 6.45¢ lb.; yellow grease 5.30¢ lb.

Ogden: Supply good; $5.75 cwt.

Ft. Worth: Demand good; supply tight; prime tallow, tank cars 6¢ lb., drums 7½¢ lb., f.o.b. north Texas packing plants, with returnable drums.

Louisville: Demand good; trend steady; supply ample; up ¼¢ lb. across the board; bleachable white 6¾¢ lb., white tallow 6¾¢ lb., yellow grease 6¢ lb., all in tanks.

St. Paul: Combination of domestic buying and exports has moved bleachable fancy price to the 6¼¢ level (f.o.b. producer's plant) for the first time since early October of 1959; production off from year ago.

Chicago: Demand very good; trend higher; supply fair; bleachable fancy tallow $6.50 cwt., yellow grease $5.87½ cwt.

Kansas City: Demand fair; trend firm; supply tight; stabilized prime tallow 5¾¢ lb.

Atlanta: Demand good; trend firm; supply limited; 5½¢ lb., f.o.b. Alabama and Georgia processing plants.

Salisbury, Md.: Demand excellent; supply limited; 6¼¢ lb.

BARLEY FEED

Boston: Demand slow; supply light; $46.50, sacked, nominal.

Ogden: Supply ample; rolled $45@46; whole $40@41.

San Francisco: Demand fair; supply ample; rolled $58, ground $57.

Los Angeles: Demand slow; trend steady; supply ample; standard rolled $3 cwt., standard ground $3 cwt., both sacked.

Philadelphia: Demand slow; supply fair; $42.50.

Seattle: Demand and supply good; trend steady; $45.50, truck lots.

Baltimore: Demand and supply fair; trend upward; $46.50, sacked.

Chicago: Demand good; trend higher; supply fair; $36, sacked.

Denver: Demand fair; trend steady; supply good; $2.10 bulk, $2.30 sacked.

Milwaukee: Demand fair; supply limited; trend unchanged; feed barley 91¢, bulk; barley feed $38.50, sacked; ground feed barley $43, sacked.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30 ton carlots: 80 granular $31.50, less than carlots $40; 200 mesh fine $31.50, less than carlots $40.

Chicago: Demand fair; supply ample; trend steady; f.o.b. Wyoming and South Dakota shipping points: 200 mesh $14 and net $13.75; fine granular (80 to 100 mesh) $14.25 and net $14; granular, 30 mesh $16.50 and net $16.25.

Denver: Demand slow; trend steady; supply good; $24.50.

BLOOD FLOUR

Louisville: Demand and supply good; trend steady; $87.50@92.50, sacked.

BLOOD MEAL

Ogden: Supply good; $85.

Omaha: Demand and trend strong; supply very short; 80% $100, sacked, Omaha.

San Francisco: Demand and supply fair; $6 a unit of ammonia, sacked.

Los Angeles: Demand slow; trend unchanged; supply moderate; $5.50 a unit of ammonia, sacked.

Louisville: Demand good; trend steady; supply ample; $87.50@92.50, sacked.

Chicago: Demand improved; trend higher; supply moderate; 80% protein $125, sacked.

Portland: Demand fair; trend steady; supply ample; $95@100, sacked.

BONE MEAL (STEAMED)

Ft. Worth: Demand good; supply sufficient; $100, sacked, f.o.b. Ft. Worth, local manufacture.

Boston: Demand and supply steady; $100.

San Francisco: Demand good; supply ample; $75, sacked.

Los Angeles: Demand fair; trend steady; supply ample; imported $80.75, 20 ton lots, sacked.

Cincinnati: Demand good; trend stronger; supply fair; $110, sacked, Cincinnati.

Louisville: Demand fair; trend steady; supply light; $95@100, sacked.

Chicago: Demand better; trend strong; supply light; $97.50, sacked.

Denver: Demand slow; trend steady; supply ample; $112.50.

Seattle: Demand fair; trend steady; supply good; $92, f.o.b. car Seattle, sacked.

Buffalo: Demand fair; trend strong; supply light; $95, sacked.

Portland: Demand fair; trend steady; supply adequate; $95@98.

BREWERS DRIED GRAINS

Philadelphia: Demand and supply fair; $62.

Cincinnati: Demand poor; trend steady; supply adequate; $58.

Ft. Worth: Demand slow; supply scarce; 26% protein $63.40, sacked, January.

Boston: Demand active; supply light; $61.75.

San Francisco: Demand fair; supply ample; $51, sacked.

Los Angeles: Demand good; trend steady; supply limited; $51.50.

Louisville: Demand good; trend steady; supply near zero; $62, sacked.

Milwaukee: Demand good; trend strong; supply limited; $52.50 bulk, $59.50 sacked.

Chicago: Demand good; trend higher; supply fair; 26% protein $50@51.

Buffalo: Demand and supply fair; trend steady to lower; $62, Boston.

St. Louis: Demand good; trend firm; supply limited; $51.

BREWERS DRIED YEAST

Los Angeles: Demand good; trend steady; supply limited; 10¢ lb., 5 ton lots; 11¢ lb., 1 ton lots; 12¢ lb., less than ton lots; all sacked.

Omaha: Demand slow; trend improving; supply plentiful; 10¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb., sacked.

Boston: Demand and supply steady; 11¢ lb.

Cincinnati: Carlots 11¢ lb.; 5 ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

Louisville: Demand good; trend steady; supply fair; 10@10½¢ lb., sacked.

Chicago: Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots, sacked; 9¾@12½¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10½@12½¢ lb., ton lots, sacked.

St. Louis: Demand fair; trend firm; supply ample; 9½@10¢ lb., carlots, sacked; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Pittsburgh: Carlots 10¢ lb.; 5 ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

New York: Carlots 9¾¢ lb.; 10 ton lots 10¢ lb.; 5 ton lots 10½¢ lb.; ton lots 11¢ lb., all sacked, f.o.b. New Jersey.

Buffalo: Demand fair; trend steady; supply ample; $9 cwt.

Seattle: Demand slow; trend steady; supply ample; $12 cwt., sacked.

Denver: Demand fair; trend steady; supply ample; 9¢ lb., f.o.b. warehouse.

Portland: Demand fair; trend steady; supply adequate; 12¢ lb.

BUTTERMILK (CONDENSED)

Boston: Demand and supply steady; 4½¢ lb.

Philadelphia: Demand slow; supply fair; $4.25 cwt.

Ogden: Supply good; $4.40 cwt., drum.

San Francisco: Demand fair; supply good; $5 cwt., drum.

Los Angeles: Demand slow; trend steady; supply adequate; 5½¢ lb., 100 lb. lots; 4½¢ lb., 500 lb. lots; both in barrels.

Louisville: Demand and supply nil; trend steady; $4.25 cwt. in 500 lb. paper drums.

Chicago: Demand fair; trend firm; supply ample; 500 lb. barrels $3.05@3.25, cwt.

CALCITE CRYSTALS AND FLOUR

(All prices net, sacked, including freight)

New York: Crystals $16.28, flour $10.28.

Buffalo: Crystals $17.11, flour $11.11.

Toledo: Crystals $18.96, flour $12.96.

Boston: Crystals $17.63, flour $11.63.

Lime Crest, N.J.: Crystals $11.50, flour $5.50.

CALCIUM CARBONATE

Cincinnati: Demand fair; trend steady; supply adequate; $7@7.50 cwt.

Los Angeles: Demand fair; trend steady; supply adequate; flour $9.95, 20 ton cars; meal $10.20, 20 ton cars; both sacked.

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100 lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50 lb. bags $13.75; 100 lb. bags $13; bulk, boxcar $11.50; bulk, hopper $11; coarse grind $1 premium, delivered Minneapolis.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, sacked.

CHARCOAL

San Francisco: Demand steady; supply ample; $141, sacked.

Boston: Demand slow; supply light; granular No. 6 $110.

Los Angeles: Demand slow; trend unchanged; supply ample; hardwood poultry; $156, less than ton lots; $144.40, ton lots; both sacked.

Chicago: Demand fair; trend firm; supply fair; 50 lb. multiwalls $110.

COCONUT OIL MEAL

San Francisco: Demand fair; supply ample; solvent $52, expeller $69.

Los Angeles: Demand and trend steady; supply adequate; copra cake $63.

Seattle: Demand fair; trend steady; supply ample; solvent type $68, f.o.b. car Seattle, sacked.

Portland: Demand slow; supply adequate; trend unchanged; $62.10.

COD LIVER OIL (FORTIFIED)

Boston: Demand and supply steady; 300 D, 3,000 A 20¢ lb.; 600 D, 2,250 A 18½¢; 300 D, 2,250 A 18¢; 600 D, 1,500 A 17¢; 300 D, 1,500 A 16½¢.

CONDENSED FISH SOLUBLES

Boston: Demand quiet; supply ample; $37.50@40.

Los Angeles: Demand fair; trend steady; supply ample; 2¢ lb.

Denver: Demand slow; trend steady; supply ample; 3¢ lb., West Coast.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are bulk basis, sacked basis $5 more)

Minneapolis: Feed $53.60, meal $68.60.
Atlanta: Feed $57, meal $72.
Birmingham: Feed $55.60, meal $70.60.
Boston: Feed $58.50, meal $73.50.
Chicago: Feed $47, meal $62.
Cleveland: Feed $54.90, meal $69.90.
Denver: Feed $57.20, meal $72.20.
Ft. Worth: Feed $56.70, meal $70.70.
Indianapolis: Feed $52.20, meal $67.20.
Kansas City: Feed $47, meal $62.
Louisville: Feed $52.60, meal $68.60.
New Orleans: Feed $56.90, meal $71.90.
New York: Feed $58.10, meal $73.10.
Norfolk: Feed $57.50, meal $72.50.
Philadelphia: Feed $57.80, meal $72.80.
St. Louis: Feed $47, meal $62.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $51.

Louisville: Demand dull; trend steady; supply light; $59.55, sacked; very little used in this market.

Seattle: Demand good; trend steady; supply ample; $52, car.

COTTONSEED OIL MEAL

Cincinnati: Demand fair; trend steady; supply fair; $59, 40 ton lots.

Los Angeles: Demand and trend steady; supply adequate; $54.

Omaha: Demand slow; trend steady; supply ample; 41% solvent $59.70, delivered Omaha.

Ft. Worth: Demand good for old process and hulls, slow for solvent; supply sufficient on cottonseed oil meal, light on hulls; 41% old process $63, f.o.b. mills Ft. Worth; carlots, solvent, 2% fat added $56@57, delivered Ft. Worth; pellets $3 additional, hulls $23.

San Francisco: Demand fair; supply ample; 41% $57, 44% $58.

Boston: Demand slow; supply light; $70.50.

Ogden: Supply good; 41% $61@63.

Philadelphia: Demand and supply fair; $68, 30 ton cars.

Wichita: Demand fair; supply ample; 41% old process $67, sacked.

Louisville: Demand fair; trend steady; supply normal; new and old process balanced at $61.60, sacked; a drop of $1 on old process and an increase of $1 on new process.

Chicago: Demand less aggressive; trend easier; supply ample; Memphis basis, hydraulic $53.

Denver: Demand good; trend steady; supply ample; $59.

Seattle: Demand good; trend steady; supply ample; $66, f.o.b. car Seattle.

Memphis: Demand poor; trend steady; supply ample; prime 41% protein old process $51, new process, 41% solvent $50.

Kansas City: Demand fair; trend weaker; supply ample; 41% old process $52@52.50; solvent process $51@51.10, Memphis.

Buffalo: Demand poor; trend steady to lower; supply adequate; $74, sacked, Boston.

Portland: Demand good; trend steady; supply adequate; $64.10.

St. Louis: Demand fair; trend easy; supply ample; solvent $54.

Atlanta: Demand fair; trend weak; supply good; 41%: $57, Georgia and South Carolina; $55, north Alabama; $51, Mississippi and Tennessee producing mills.

CURACAO PHOSPHATE

New York: Minimum 14% phosphorus $46.50 sacked, $43.50 bulk, f.o.b. New Orleans, Jacksonville and Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply ample; 1,500 ICU 9½¢ lb.; 3,000 ICU 11¢ lb.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; guaranteed uniform analysis; carload $61.25, sacked, 100 lb. multiwall bags, bulk $58.25; truck load $62, sacked, in 100 lb. multiwall bags, bulk $59, f.o.b. Coronet, Fla.

Tupelo, Miss.: Minimum phosphorus 14%, minimum calcium 28%, maximum fluorine .14% $52, f.o.b. Tupelo in 100 lb. multiwall bags, $49 bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum 36%, maximum fluorine .18% $66 (or $3.67 per unit of P), f.o.b. Wales in 100 lb. multiwall bags, $3 less in bulk.

Butte, Mont.: Minimum phosphorus 18%, minimum calcium 32%, maximum calcium 36%, maximum fluorine .18% $81 (or $4.50 per unit of P), f.o.b. Butte, 100 lb. multiwall bags; bulk $78; truck lots of less than 10 tons $10 more, bagged or bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $69.35 net ton, f.o.b. Houston, 100 lb. multiwall bags; $66.35 bulk ($3.65 per unit of P).

Cincinnati: 18% phosphorus, carlots $74.30, ton lots $84.30; 14% phosphorus,, carlots $62.50, ton lots $72.50, f.o.b. Cincinnati.

Portland: Demand fair; trend steady; supply ample; $93.50@95 for product carrying a minimum of 18% phosphorus; 31.5% calcium and a maximum of 0.1% fluorine $92@93.50, dock for a minimum of 10 ton lots.

DICALCIUM PHOSPHATE

Trenton, Mich.: 18½% P $33, bulk, boxcar/hopper car; $36, bagged, in carloads or truck loads; $96 bagged, in less than carload lots; 21% P, $94.05, bulk, boxcar/hopper car; $97.65, bagged, in carloads or truck loads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

Chicago: Bulk, carlots and truck loads, 18½% phosphate $78 and 21% phosphate $89; packed in 100 lb. papers, 10 tons or more, 18½% phosphate $81 and 21% $92; lesser quantities, 18½% phosphate $91 and 21% $102; above prices, per ton, f.o.b. Chicago Heights, Ill., or Nashville, Tenn.

Bonnie, Fla.: Minimum phosphorus 18½%, granular, $81 (or $4.38 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices, for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho, $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Columbia, Tenn.: Minimum phosphorus 18.5%, minimum calcium 24% $81, f.o.b. Columbia, in 100 lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 con less.

Texas City, Texas: Minimum phosphorus 18.5%, minimum calcium 20%, maximum calcium 23%, maximum fluorine .12%; carload and truck load $75.50, sacked in 100 lb. multiwall bags, bulk $72.50, f.o.b. Texas City.

Denver: Demand fair; trend steady; supply ample; $88.50, delivered carload.

Cincinnati: 18½% phosphorus $88.80, bagged, in carloads; $98.70, bagged, in ton lots, f.o.b. Cincinnati: $81, f.o.b. production points.

DISTILLERS DRIED GRAINS

San Francisco: Demand fair; supply ample; solubles $79, sacked.

Philadelphia: Demand fair; supply very light; dark $71.

Boston: Demand good; supply improved; light $68, dark $69.

Cincinnati: Demand poor; trend steady; supply adequate; $56.

Louisville: Demand good; trend strong; supply light; bourbon grains, sacked, Louisville: light $67, dark $68, solubles $73.

Seattle: Demand good; trend firm; none

available; $71, delivered truck lots, sacked.
Buffalo: Demand good; trend steady to higher; supply fair to poor; $71, Boston.

DRIED BEET PULP

Ft. Worth: Demand slow; offerings light; plain $63.20, sacked, 50 lb. bags, January.
San Francisco: Demand good; supply fair; $44.80.
Boston: Demand slow; supply fair; $59.50, sacked.
Ogden: Supply ample; $39@45.
Los Angeles: Demand good; trend steady; supply ample; $49.90.
Denver: Demand fair; trend steady; supply good; $65.
Seattle: Demand good; trend steady; supply ample; $49, delivered carlots, sacked.
Milwaukee: Demand limited; trend slow; supply adequate; plain and molasses $53, Chicago basis.
Buffalo: Demand and supply fair; trend steady; $60.50, sacked, Boston.
Portland: Demand fair; trend steady; supply adequate; $47.58, sacked.
Atlanta: Demand fair; trend steady; supply limited; $59.77, sacked, delivered.

DRIED BUTTERMILK

Los Angeles: Demand fair; trend steady; supply ample; 13¾@14¢ lb., sacked.
San Francisco: Demand fair; supply ample; 13½¢ lb., sacked.
Boston: Demand light; supply short; 14¢ lb., nominal.
Ogden: Supply good; $17.25 cwt.
Louisville: Demand dull; 13@13½¢ lb., sacked.
Milwaukee: Demand and supply limited; trend firm; 11¢ lb.
Chicago: Demand fair; trend easier; supply ample; medium acid $11.25@11.75 cwt., sweet cream $11.25@11.75 cwt., both sacked.
Buffalo: Demand fair; trend steady; supply short; $11.30 cwt.

DRIED CITRUS PULP

San Francisco: Demand and supply fair; meal $48, sacked.
Boston: Demand fair; supply improved; $41.50, f.o.b. Florida.
Los Angeles: No offerings.
Buffalo: Demand and supply fair; trend steady; $42, sacked, f.o.b. Florida points.
Atlanta: Demand fair; trend weak; supply good; pulp $40@42.50, meal $35@37.50, both sacked, f.o.b. Florida processing plants.

DRIED SKIM MILK

Philadelphia: Demand slow; supply fair; $13 cwt.
Omaha: Demand and trend strong; supply short; 12¢ lb.
San Francisco: Demand and supply fair; 14½¢ lb., sacked.
Boston: Demand good; supply short; 13¢ lb.
Los Angeles: Demand slow; trend steady; supply adequate; 15¢ lb., less than ton lots; 14¾¢ lb., ton lots; both sacked.
Louisville: Demand slow; trend steady; supply normal; 12@12½¢ lb., sacked.
Cincinnati: Demand fair; trend steady; supply adequate; 12@13¢ lb., sacked.
Ogden: Supply ample; $13.15 cwt., sacked.
Milwaukee: Demand and supply limited; trend firm; 13¢ lb.
Minneapolis: No change from last week; $12 cwt.
Chicago: Demand quiet; trend firm; supply fair; $10.75@11 cwt., sacked.
Buffalo: Demand fair; trend easier; supply ample; spray $12.25 cwt.

DRIED WHEY

San Francisco: Demand steady; supply good; $5.25 cwt., sacked.
Ft. Worth: Demand fair; supply adequate; carlots, standard $5.25, sacked, delivered Ft. Worth; ton lots $5.50, f.o.b. warehouse, Ft. Worth.
Boston: Demand and supply good; 5¼@5½¢ lb.
Ogden: Supply good; $6.90 cwt., sacked.
Omaha: Demand and trend fair; supply ample; $5.50 cwt.
Philadelphia: Demand slow; supply fair; $6.25 cwt.
Los Angeles: Demand fair; trend steady; supply adequate; $5.18 cwt., carloads; $5.35 cwt., l.c.l.; both sacked.
Cincinnati: Demand fair; trend steady; supply adequate; $5.75 cwt., sacked.
Louisville: Demand slow; trend steady; supply light; 6@6¼¢ lb., sacked.
Seattle: Demand steady; trend easy; supply good; $5.85 cwt., ex-warehouse, l.c.l.
Denver: Demand slow; trend steady; supply good; $5.25 cwt., delivered.
Chicago: Demand quiet; trend unchanged; supply fair; $4.75@4.85 cwt., sacked.
Minneapolis: Demand good; supply adequate but less than last week; market steady at $5.25 cwt.
Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed $5.25 cwt., sacked.
Portland: Demand fair; supply adequate; trend unchanged; $6@6.25 cwt., sacked.

FEATHER MEAL (HYDROLYZED)

Boston: Demand slow; supply ample; $65.
Ft. Worth: Demand fair; supply light; 85% protein $67.50@68.50 bulk, $69.50@70.50 sacked; delivered Ft. Worth.
Los Angeles: Demand good; trend steady; supply adequate; 90¢ a unit of protein, sacked.
Salisbury, Md.: Demand spotty; supply excessive; $60, f.o.b.
Atlanta: Demand fair; trend steady; supply good; $64, f.o.b. Georgia and Alabama processing plants.

FISH MEAL

Los Angeles: Demand good; trend firmer; supply limited; local production, 60% protein $1.55 a unit, sacked.
Omaha: Demand and trend strong; supply ample; 60% menhaden $110, f.o.b. Omaha.
Ft. Worth: Demand fair; supply sufficient; sacked; 65% protein Peruvian $88.50, 60% protein menhaden $98.50, delivered Ft. Worth.
San Francisco: Demand slow; supply ample; $1.35 a unit of protein.
Boston: Demand good; supply adequate; 60% menhaden $90@92.
Ogden: Supply ample; $1.05 a unit, f.o.b. Coast; 65% $105@108.
Cincinnati: Demand fair; trend steady; supply adequate; $108.60.
Louisville: Demand dull; trend steady; supply normal; $100@110, sacked.
Buffalo: Demand light; trend steady; supply ample; 60% protein menhaden $100 bulk, $105 sacked.
Seattle: Demand fair; trend steady; supply good; $1.35 a unit protein, f.o.b. truck Vancouver, B.C. (Canadian production).
Minneapolis: Demand fair; supplies ample; no price change from last week; Canadian herring steady at $1.25 a unit, West Coast, subject to production; 60% West Coast blended steady at $113, sacked, delivered.
Chicago: Demand greatly improved; supply ample; trend firm; sacked: menhaden, East Coast $88@90, Gulf $88@90; menhaden scrap, East Coast $84@86, Gulf $84@86; Canadian herring meal $1.25@1.30 a unit of protein.
Denver: $1.40 a protein unit, Vancouver.
Milwaukee: Demand limited; trend slow; supply adequate; 60% $105, sacked, Chicago basis.
Portland: Demand good; trend steady; supply adequate; $1.45 a protein unit, sacked.
Atlanta: Demand spotted; trend steady; supply ample; 60% menhaden $88@92, sacked, f.o.b. Atlantic and Gulf ports.

HAY

Los Angeles: Demand slow; trend steady; supply ample; U.S. No. 1 $33@35; U.S. No. 2 leafy $29.50@31; U.S. No. 2 green $30@31; U.S. No. 2 $27@28.
Ft. Worth: Demand fair; supply sufficient; carlots, baled, No. 1 alfalfa $42@44; No. 2 $40@42, delivered Texas common points.
Wichita: Demand good; supply sufficient; prairie $24@27, alfalfa $32@34, baled.
Cincinnati: Demand poor; trend steady; supply adequate; second cutting alfalfa $35; No. 1 timothy $25; No. 1 red clover $30; No. 1 timothy and clover mixed $30; straw $18.
Philadelphia: Demand slow; supply light; $25.50.
Ogden: Supply ample; $25 ton in the barn.
Boston: Demand and supply steady; No. 2 timothy $39@42.
Louisville: Demand dull; trend steady; supply good; local hay, No. 1 $28@30, No. 2 $26@28; lespedeza, No. 1 $25, No. 2 $23; straw $18@20.
Seattle: Demand good; trend firm; supply fair; U.S. No. 2 green alfalfa $37, delivered truck lots, baled.
Portland: Demand slow; trend barely unchanged; supply ample; alfalfa, No. 2 green $32@34 ton, baled, Portland-Seattle.

HOMINY FEED

Cincinnati: Demand poor; trend lower; supply adequate; $42.
Boston: Demand slow; supply plentiful; $49.50.
Louisville: Demand dull; trend strong; supply light; not much used in this market; $47.50, sacked, up $1.
Seattle: Demand good; trend firm; supply limited; $51, delivered carlots, sacked.
Milwaukee: Demand good; supply limited; trend unchanged; $41 bulk, $45.50 sacked, both Chicago basis.
Memphis: Demand poor; trend steady; supply ample; white $42.90, yellow $42.90.
Chicago: Demand fair; trend easier; supply adequate; $39.
St. Louis: Demand slow; trend easy; supply ample; yellow $40.
Kansas City: Demand fair; trend steady; supply tight; white or yellow $36@36.50.
Buffalo: Demand fair; trend steady to lower; supply good; $49, Boston.

LINSEED OIL MEAL

Wichita: Demand fair; supply ample; 34% $75, sacked.
Omaha: Demand good; trend strong; supply tight; 34% solvent $52.90; 32% old process $67.40, Omaha basis.
Ft. Worth: Demand slow; supply sufficient; 34% protein, extracted $70, January-April.
Philadelphia: Demand slow; supply fair; 34% $73.
San Francisco: Demand fair; supply ample; $71.
Boston: Demand slow; supply light; $69.50.
Cincinnati: Demand poor; trend higher; supply adequate; new process $55.50; old process $60.50, Minneapolis.
Los Angeles: Demand and trend steady; supply ample; local production, 31% protein $71.
Louisville: Demand fair; trend strong; supply normal; old process $80.50, sacked, up $1; new process $76.50, sacked, up $2.
Chicago: Demand good; trend steady to slightly higher; supply fair; Minneapolis basis: solvent $56.50, expeller $61.
Seattle: Demand fair; trend steady; supply good; 34% protein (Montana) $85, delivered carloads, sacked.
Milwaukee: Demand limited; trend stronger; supply tight; expeller $80, solvent $77, both sacked, Chicago basis.
Minneapolis: Price continues rise; January solvent up $2 from last week to $57.50.
Portland: Demand slow; trend strong; supply tight; $88, sacked.
Denver: Demand fair; trend steady; supply good; $71 bulk, $75.50 sacked.
Kansas City: Demand improved; trend stronger; spotty and tight; solvent process $57@57.50, old process $60@60.50, Minneapolis.

LIVER AND GLANDULAR MEAL

Omaha: Demand and trend fair; supply plentiful; 65% $160, sacked, Omaha.

MALT SPROUTS

Boston: Demand and supply limited; $48, nominal.
Cincinnati: Demand poor; trend steady; supply adequate; No. 1 $46.
Chicago: Demand fair; trend steady; supply ample; $43.
Milwaukee: Demand good; trend strong; supply firm; $43@43.50, bulk; $49.50@50, uneven bags; $51@51.50, even bags.

MEAT AND BONE MEAL

Ft. Worth: Demand good; supply fair; meat and bone, 50% $80 bulk, $83 sacked, f.o.b. Ft. Worth.
Ogden: Supply ample; 50% protein $75.50, sacked.
Omaha: Demand very strong; supply short; trend strong; $92.50.
Los Angeles: Demand very good; trend firmer; supply limited; 50% protein $1.55 a unit.
San Francisco: Demand fair; supply ample; $1.55 a unit of protein.
Boston: Demand and supply steady; $1.20 a protein unit; converted, 50% $72.50.
Wichita: Demand heavy; supply insufficient; 50% $90, sacked, f.o.b. plant.
Cincinnati: Demand good; trend stronger; supply fair; 50% meat and bone scraps $85, Cincinnati.
Louisville: Demand fair; trend steady; supply good; $87.50@92.50, sacked.
Chicago: Demand good; trend higher; supply moderate; 50% protein $90, sacked.
St. Louis: Demand good; trend firm; supply limited; $88.
Portland: Demand good; trend steady; supply adequate; $75, sacked.
Denver: Demand good; trend steady; supply ample; $80.
St. Paul: Plentiful supplies lowered price $1@2 in week to $87@90, sacked.
Seattle: Demand good; trend firm; supply limited; $1.50 a unit protein, ex-processing plant, sacked.
Kansas City: Demand good; trend firm; supply tight; 50% $85.
Buffalo: Demand good; trend firm to strong; supply light; 50% meat scraps $85 bulk, $90 sacked.

MILLFEED

Minneapolis: Plentiful supplies have cut prices substantially from week ago; sacked bran down $4 to $42.50; sacked middlings down $2 to $40.50; sacked red dog down $3@4 to $44.
Kansas City: Demand slow; trend easy; supply ample; sacked, bran $40@40.50, shorts $38@38.50; bulk, bran $34@34.50, shorts $34@34.50, middlings $34@34.50.
Wichita: Demand fair; supply ample; basis Kansas City: bran $40.50@41, shorts $39@39.50, sacked; bran declined $1.25 and shorts 75¢, compared with the preceding week; bulk middlings $35.50@36, down $2, with demand slow.
Ft. Worth: Demand fair; offerings liberal; bran, bulk $44.50, burlaps $48.50; gray shorts, bulk $44.50, burlaps $47; bulk middlings $44.50, delivered Texas common points; bulk bran $2.50 lower, bulk shorts and middlings $3 lower, sacked bran and shorts $1@1.50 lower than previous week.
Omaha: Demand fair; trend easy; supply ample; sacked bran $41.50, sacked gray shorts $40, bulk standard midds. $37, all Omaha basis.
Chicago: Demand less aggressive; trend easier; supply ample; standard bran $40, standard middlings $40, red dog $43.50.
St. Louis: Demand slow; trend easier; supply ample; sacked, bran $45, shorts $43; bulk, bran $39, middlings $39.
Boston: Demand steady; supply spotty; bran $52.60, middlings $53.10.
Buffalo: Market in lull a little earlier than usual; sacked differential on bran and middlings ended at $7; bulk and sacked bran $2 lower, bulk and sacked middlings down $2.50, bulk and sacked red dog down $3; Jan. 18 quotations: bulk bran $42@42.50, sacked $49@49.50; bulk middlings $42.50@43, sacked $49.50@50; bulk red dog $47@48, sacked $54@55.50.
Philadelphia: Demand spotty; trend very unsettled; supply fair; bran $51.50, standard midds. $52, red dog $57.50.
Memphis: Demand poor; trend weak; supply ample; wheat bran $42.30, gray shorts $42.30, standard midds. $42.30.
Louisville: Demand slow; trend easy; supply good; bran $50.55, mixed feed $50.30, shorts $50.55, all sacked.
Seattle: Demand good; trend steady; supply limited; $44, delivered common transit points, carlots.
Portland: Demand good; trend steady; supply adequate; $42@42.50.
Ogden: Supply average; to Utah: red bran and millrun $39, middlings $44.
Denver: Demand fair; trend steady; supply ample; shorts $42.25, bran $43.75, millrun $43.
San Francisco: Demand good; supply fair; millfeed $19, red bran $54.
Los Angeles: Standard millrun $50@50.50, demand and trend steady, supply adequate; red bran $54@54.50, demand slow, trend weaker, supply adequate.

MINERAL FEED

Ft. Worth: Demand fair; supply adequate; all-purpose granules $90, block $70; mineral phosphorus 5% granules $106, block $113; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50 lb. paper bags).
San Francisco: Demand steady; supply good; all-purpose with iodine $70, sacked.
Ogden: Supply good; $113 in 50 lb. blocks; granular $103, 50 lb. bags.
Wichita: Demand heavy; supply sufficient; all-purpose with iodine, 50 lb. blocks $97.50, 100 lb. bags $92.50, f.o.b. plant.
Portland: Demand fair; supply adequate; trend unchanged; $44@45.
Sioux City: 50 lb. mineral blocks 8.2% phosphorus $92, 7.5% phenothiazine sheep mineral blocks $4 each.
Seattle: Demand fair; trend steady; supply good; mixer mineral $48, all-purpose mineral $85, both ex-warehouse, sacked.

MOLASSES

San Francisco: Demand and supply good; $25.75, f.o.b. cars Richmond, Cal.
Boston: Demand good; supply spotty; 16½¢ gal. in tank cars.
Ft. Worth: Demand fair; supply sufficient; blackstrap 13½¢ gal., f.o.b. Houston; delivered Ft. Worth truck $29.75, seller's market price on date of shipment.
Los Angeles: Demand good; trend steady; supply adequate; $22.50, f.o.b. tank cars; $22.75, f.o.b. tank trucks.
Cincinnati: Demand fair; trend steady; supply adequate; 13¼¢ gal., New Orleans.
Louisville: Demand fair; trend steady; supply normal; 13¾¢ gal., tank car lots, f.o.b. Gulf ports.
Denver: Demand and trend steady; supply ample; $33.60, tank, Denver.
Seattle: Demand and supply good; trend firm; $25.75, f.o.b. Seattle tank truck lots.
Minneapolis: Market still unchanged; blackstrap $33, tank truck, delivered; beet $30, blend $31.50.
Atlanta: Demand good; trend strong; supply limited; $22, f.o.b. Florida processing plants.
St. Louis: Demand fair; trend steady; supply adequate; 13¼¢ gal., tank car, New Orleans.
Kansas City: Demand fair; trend steady; supply ample; blackstrap 13¢ gal., f.o.b. New Orleans.
Milwaukee: Demand fair; trend strong; supply limited; blackstrap 13@13½¢ gal., f.o.b. New Orleans.
Buffalo: Demand fair to good; trend steady; supply fair; 16½¢ gal., f.o.b. Albany.
Memphis: Demand fair to good; trend steady; supply ample; blackstrap 13@13¼¢ gal., tank car, f.o.b. New Orleans, and $29.50 ton, delivered Memphis, truck.

OAT PRODUCTS

Philadelphia: Pulverized whites, demand slow, supply fair $48.50; domestic, demand slow, supply very light $29; Canadian oat feed, demand fair, supply very light $34, sacked, nominal.
Los Angeles: Demand slow; trend unchanged; supply adequate; local production, pulverized $67, sacked.
Cincinnati: Demand poor; trend steady; supply adequate; pulverized white oats $45@52.
Ft. Worth: Demand slow; supply sufficient; 10% protein oat milfeed $41.20; reground $28.80, sacked.
Boston: Demand fair; supply irregular; white pulverized, sacked $55; reground oat feed, domestic $26; Canadian $25.75, both sacked.
Louisville: Demand fair; trend easy; supply normal; reground $26.40, rolled $80.90, feeding $75.90, pulverized $49.90, crimped $63.90, all sacked.
Minneapolis: Prices unchanged from last week; feeding rolled $73, feeding oatmeal $62, pulverized $41.50, crimped $58.90, reground oat feed $26, all sacked.
Seattle: Demand and supply fair; trend steady; 38 lb. or better $57, delivered truck lots.
Chicago: Demand and supply fair; trend firm; reground oat feed $16.50@17, No. 1 fine ground feeding oatmeal $70, feeding rolled oats $74.
Memphis: Demand poor; trend weak; supply ample; 3¾% protein, reground oat feed $26.25.

OYSTER SHELL

Los Angeles: Demand fair; trend steady; supply ample; $15.40, sacked.
Cincinnati: Demand fair; trend steady; supply adequate; 80 lb. bags $23.85, 50 lb. bags $24.10, 25 lb. bags $26.35.
San Francisco: Demand fair; supply ample; local $15, eastern $26, both sacked.
Boston: Demand and supply steady; in paper $26.52.
Louisville: Demand good; trend steady; supply normal; in 80 lb. papers $23.95, in 50 lb. paper bags $24.20, in 25 lb. paper bags $26.45.
Portland: Demand fair; supply ample; trend unchanged; $27.50@35, sacked.
Seattle: Demand and trend steady; supply good; eastern $36, delivered carlots, sacked.

PEANUT OIL MEAL

Atlanta: Demand fair; trend weak; supply limited; 45% $53 for expeller, $50 for solvent, f.o.b. Georgia and Alabama producing mills.
Milwaukee: Demand limited; trend slow; supply adequate; 26% $42 bulk, $46.50 sacked, both Chicago basis.

PEAT MOSS

Philadelphia: Demand slow; supply fair; $2.85 bale, f.o.b. pier.
San Francisco: Demand and supply fair; $3.65 a bale.
Boston: Demand and supply steady; $3.15 a bale in carlots.
Los Angeles: Demand fair; trend steady; supply nominal; Canadian 5.6 cu. ft. bales $3.65.
Cincinnati: Demand and supply good; trend steady; truck loads $3.45 a bale, f.o.b. Cincinnati.
Portland: Demand sluggish; trend unchanged; supply ample; $3@3.15 per 5.6 cu. ft. bale.
Chicago: Demand and supply fair; trend firm; standard 7½ cu. ft. bale $3.80.
Seattle: Demand poor; trend steady; supply good; $2.60 a bale, delivered truck lots.

POTASSIUM IODIDE, U.S.P.

Cincinnati: Demand good; trend steady; 90% KI calcium stearate or carbonate mixtures: 250 lb. drums $1.35, 200 lb. in 100 lb. drums $1.35, 100 lb. drums $1.38, 25 lb. drums $1.41, f.o.b. Cincinnati.
Chittenango, N.Y.: Demand good; trend firm; supply adequate; standard trace min-

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eral blends, 90% U.S.P. K.I. and 10% calcium stearate, magnesium carbonate or calcium hydroxide: 100 lb. drums $1.42 lb.; 200 lb. and up $1.40 lb., delivered basis.

POULTRY BY-PRODUCTS

Boston: Demand good; supply adequate; $73, f.o.b. shipping point.

Los Angeles: Demand good; trend steady; supply adequate; $1.30 a unit of protein, sacked.

Salisbury, Md.: Meal demand good; supply ample; $72, f.o.b.

Atlanta: Demand good; trend strong; supply limited; meal $77, f.o.b. Georgia and Alabama processing plants.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gm. in less than ton lots in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more, freight prepaid or paid to destination.

RICE BY-PRODUCTS

Ft. Worth: Demand good; supply very scarce; rice bran $35@36, f.o.b. south Texas rice mills, sacked; hulls $4.50, sacked.

San Francisco: Demand good; supply ample; bran $40.

Los Angeles: Demand slow; trend firmer; supply adequate; California production, high fat content, bran $52, sacked.

Atlanta: Demand good; trend steady; supply very limited; bran $45, sacked, delivered.

SCREENINGS

Cincinnati: Demand good; trend steady; supply adequate; unground grain screenings $23.50@24.50.

Minneapolis: No more than a sprinkling of domestics available and most of the distress supplies from Canada have been cleaned up; February and March is pegged at $22; domestic ranges unchanged from last week: light $9@13, mediums $14@21, heavies $22@31; 15% flax screenings nominal $37.

Chicago: Demand and supply fair; trend firm to easier; ground grain, bulk $31; Canadian, sacked $26.

Buffalo: Demand and supply fair; trend steady to higher; ground, sacked $37, New York; unground, bulk $30, New York.

SOFT PHOSPHATE

(Sacked, delivered)

Atlanta: $20.65.
Buffalo: $25.50.
Chicago: $24.96.
Cincinnati: $23.64.
Des Moines: $25.42.
Kansas City: $25.07.
Memphis: $22.28.
Minneapolis: $26.12.
Philadelphia: $24.51.
St. Louis: $24.32.

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SORGHUMS

Ft. Worth: Demand fair; supply sufficient; No. 2 yellow milo $2.03@2.05 cwt., delivered Texas common points.

Ogden: Supply ample; $41@42.

Los Angeles: Demand good; trend firmer; supply adequate; milo $2.21½ cwt.

Seattle: Demand and supply good; trend firm; $45, delivered carlots.

SOYBEAN OIL MEAL

Ft. Worth: Demand good; supply sufficient, except tight on 50% for January; 44% $61.80@64.50 January, $62.80@65.50 February, $63.80@66.50 March; 50% $66.30@68.50 January, $67.30@69.50 February, $68.30@70.50 March.

Omaha: Demand slow; trend steady; supply ample; 44% $59.50, delivered Omaha.

San Francisco: Demand fair; supply ample; $76.50.

Boston: Demand cautious; supply plentiful; 44% $49.50, 50% $56, both f.o.b. Decatur.

Ogden: Supply ample; 41% protein $70@71; 50% protein $75@76.

Los Angeles: Demand slow; trend weaker; supply ample; $76.60.

Philadelphia: Demand and supply fair; trend unsettled; 44% $51, Decatur.

Wichita: Demand fair; supply ample; 41% $67, 50% $72, sacked; 44% $63, 50% $68, bulk, f.o.b. Wichita.

Cincinnati: Demand fair; trend easier; supply adequate; $51.50@54, Decatur.

Denver: Demand fair; trend steady; supply ample; 44% $66.50.

Seattle: Demand good; trend firm; supply ample; $77.60, delivered carlots.

Chicago: Demand moderate; trend easier; supply liberal; Decatur basis, 44% protein, unrestricted billing $52.50 and E.T.L. $48; 50% protein, unrestricted billing $57 and E.T.L. $52.50@53.

Memphis: Demand poor; trend steady; supply ample; prime 44% solvent $55, f.o.b. Memphis.

Minneapolis: Demand off; easier market; 44% steady to down 50¢ at $48; 50% down 50¢ to $53.

Milwaukee: Demand and supply fair; trend strong; $54, Decatur.

Kansas City: Demand slow; trend easier; supply ample; 44% solvent process $52@52.50, Decatur.

Atlanta: Demand fair; trend weak; supply good; 44% $61, delivered.

Portland: Demand slow; trend easy; supply ample; $75.60.

St. Louis: Demand slow; trend easy; supply ample; 44% $56.50.

TANKAGE

St. Paul: Steady market; supplies still tight; $87@90, sacked.

Kansas City: Demand good; trend firm; supply tight; 60% digester $85.

Chicago: Demand good; trend higher; supply fair; 60% protein $90, sacked.

Ft. Worth: Demand good; supply limited; 60% digester $87.50, sacked, Ft. Worth.

Cincinnati: Demand good; trend stronger; supply short; 60% digester $90, Cincinnati.

Wichita: Demand heavy; supply insufficient; 60% $90, sacked, f.o.b. plant.

Omaha: Demand very strong; trend strong; supply short; $92.50.

Louisville: Demand fair; trend steady; supply good; 60% protein $87.50@92.50, sacked.

St. Louis: Demand good; trend firm; supply limited; $90.

UREA FEED COMPOUND

Woodstock, Tenn.: Minimum 42% nitrogen, 262% protein equivalent; $100, bagged, f.o.b., freight equalized with nearest producing plant; bulk $96.

Lima, Ohio: Minimum 42% nitrogen, 262% protein equivalent; $100, f.o.b. bagged.

Pryor, Okla.: Minimum 42% nitrogen, 262% protein equivalent; $100, f.o.b. bagged; $96, bulk cars or trucks, freight equalized with nearest producing point.

Belle, W. Va.: Minimum 42% nitrogen, 262% protein equivalent; $100, f.o.b. bagged; $96, bulk cars or trucks, freight equalized with nearest producing point.

LaPlatte, Neb., and South Point, Ohio: Minimum 42% nitrogen, 262% protein equivalent, $100 ton, f.o.b., bagged; $96 ton, bulk, cars or trucks, freight equalized with nearest producing point.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; supply limited; 5½¢ lb., f.o.b. north central Texas.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; 50 lb. or more $1.40, less than 50 lb. $1.45, freight allowed to destination.

WHEAT GERM MEAL

Minneapolis: Demand improved; price up $2@3 to $54@55, jutes.

Buffalo: Demand and supply fair; trend steady to lower; commercial grade $62, sacked, f.o.b. Buffalo.

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INDUSTRY

(Continued from page 1)

to a halt—but it didn't do much to ease the pain of concern for prices. USDA says growers intend to produce not 7%, not 13% but 20% more turkeys this year than last. This supported prediction more than likely caught most of the industry by surprise—unless growers and others who attended the recent National Turkey Federation convention in Chicago (Feedstuffs, Jan. 14) reacted more optimistically than they really felt. Though there are a few in the industry who believed the jump might be as much as 20%, most turkeymen, according to convention gossip, predicted an increase of somewhere between 5 and 10%.

Least Surprised?

Perhaps least surprised of all is the sage of the turkey industry—Dr. W. A. Billings, a former extension veterinarian with the University of Minnesota and one of the most famous turkeymen.

He said at the Chicago convention he wouldn't be a bit surprised if total turkey numbers reached 100 million in 1961.

Well, if growers' intentions are for real, Dr. Billings' guess will be only 1 million turkeys stronger than it should have been.

There are no two ways about it, a turkey crop of 99 million birds would give the industry some trouble. Herbert Beyers, NTF's marketing committee chairman, has said an increase of 6 or 7% "wouldn't do much harm," but an increase of 20%, well . . . It's a good thing NTF's Eat-More-Turkey advertising and promotion directors some time ago started preparing for the industry's biggest marketing year.

Intentions which indicate much greater increases in heavy breeds than in light breeds don't jibe with what some industry spokesmen believe will please the consumer.

Dr. Billings observed at the NTF convention that turkey is in direct competition with broilers and wider availability of smaller turkeys and parts of turkeys is needed. "I want a unit small enough to eat at one meal with no left-overs," he said.

One of the jobs cut out for Eat-More-Turkey probably will involve heavy promotion of turkey parts, since it has been predicted that the 1961 crop will show a 22% increase in heavy breeds and a 5% increase in light breeds.

Could Be Wrong

Of course, the turkey crop doesn't have to turn out to be as big as intentions indicate. Remember? A year ago growers intended to produce 6% more turkeys. But the 1960 crop was just about the same size as the 1959 crop.

A shortage of poults had a lot to do with that outcome. But this year turkeymen are saying there'll be "too many poults."

Since it turns out that Dr. Billings' crop size forecast couldn't have been much closer, maybe he's right again when he says: "The integrators are the ones who determine the size of the crop."

DEHYDRATING PLANT OPENED

FOREMAN, ARK.—The Little River Dehydrating Plant, a new firm which dehydrates alfalfa for pellets and meal used in poultry and livestock feed, is now operating here. The facility is owned by H. Macon Boddy. It also has facilities to dehydrate clovers, sorghums and grasses. Mr. Boddy has some 800 acres near here for production of alfalfa and clover.

DEHYDRATORS

(Continued from page 4)

at 10:15 a.m. Feb. 9 by Dr. Tyrus R. Timm, head of the department of agricultural economics, Texas A&M College. Dr. Timm's subject will be "American Agriculture in the Sixties." J. M. Schrum, ADA president, will give an address, and Joseph Chrisman, executive vice president, will report on association activities.

At the afternoon session Dr. George O. Kohler will talk on "Coumestrol—A Growth Factor in Alfalfa." Dr. Kohler is head of the Field Crops Laboratory, Western Utilization Research and Development Division of the Agricultural Research Service, USDA, Albany, Cal. The estrogen, coumestrol, was first isolated at the Albany Laboratory and the structure determined in 1957, and Dr. Kohler will tell of the research that has gone into developing a fairly convenient chemical method for analysis of coumestrol in alfalfa and studies on estrogen variability as influenced by stage of growth, cutting, season of the year, and different varieties of alfalfa.

On the Feb. 10 morning program will be Dr. G. C. Decker, State Natural History Survey Division of Illinois, Section of Economic Entomology, who will discuss "Pesticides—Their Uses, Values and Dangers."

Cost Study Report

Speakers on the Feb. 10 afternoon session will be Charles E. Reed, department of agricultural economics, Kansas State University, Manhattan, who will report on a three-year study of the cost of dehydrating alfalfa, and Dr. Herbert True, Institute of Visual Research, South Bend, Ind., who will give a presentation on "New Horizons for Sales."

The board of directors will meet all day Feb. 7 and the Research Council will meet Feb. 8 to review reports on studies now in progress and consider new proposals for future research projects. Feb. 8 will also include registration and entertainment, according to the association announcement.

Entertainment features planned for the convention are: Golf tournament, "A Day at the Races," a social hour through the courtesy of the allied industries and the annual dinner followed by a floor show and dancing.

Special entertainment for the ladies will be breakfast at Brennan's, French quarter restaurant, followed by a walking tour of the Vieux Carre Feb. 9 and a tour and visit to some of the ante-bellum homes in the fashionable Garden District the afternoon of Feb. 10.

FISH MEAL

(Continued from page 8)

choveta fishing, for a time prohibited opening of new fish meal plants.

Result of Situation

"Now, as a result of this present situation, an FAO United Nations Special Fund project has been set up," Mr. Popper reports. "This project, a Marine Resources Research Institute, will cost more than $1,700,000 in its first four years when it will be jointly financed by the government of Peru and the U.N. Special Fund. FAO is in charge of the operation. The oceanographic, biological, technical, economic and institutional factors are being studied to determine the extent to which the resources of the Peru Current may be fished. The project is also concerned with storing, processing, transporting and marketing marine products and in training Peruvian personnel to carry on research and development work."

This project, therefore, will be concerned with problems of the fishing and guano industries while an international meeting will deal with fish

meal problems, Mr. Popper reports.

"Naturally, the rapidly rising production of fish meal and the drastic fall in market price have aroused concern among both governments and the industry about future developments," Mr. Popper comments. "We have been asked by governments and by the fish meal industry in various countries to call a meeting to consider what can be done to insure a stable future for the industry.

"The present situation has reduced output in a number of countries, affecting the incomes of fishermen and others concerned with the industry. The meeting will be attended by government representatives, accompanied by advisers from their fish meal industries. It will attempt to assess the world demand for fish meal and to consider ways and means of increasing effective demand."

"Unbalanced Exploitation"

The situation resulting from the sudden development of the Peruvian fishing industry in one direction only provides a very good example of the kind of danger inherent in unplanned and unbalanced exploitation of natural resources, according to Mr. Popper.

"It is an example which should be studied carefully by many countries now seeking to develop their natural resources, whether in fisheries, forestry or in other fields," concludes Mr. Popper.

"It calls attention once again to the fact that such countries need a balanced development program so that progress made in one sector of an industry should not have an adverse effect on other sectors. A proper balance is particularly needed between primary production on the one hand and the marketing and use of the product on the other. The lack of such balance can completely frustrate the objective of development and, moreover, as in the case of Peru, be damaging on an international scale."

'PHARMACISTS'

(Continued from page 1)

man was just being facetious. Each was voicing a view of some of the basic problems of compliance with and enforcement of regulations which government spokesmen see extending through final mixing of any feed containing a new drug.

Although a good deal has been said and written about it recently, many of the feed men on hand at the meeting—predominantly local mixers and manufacturers — apparently had not fully recognized that FDA's new drug regulation requirements are interpreted as legally extending all the way to the local mixer and farm mixer.

They were advised at the outset, however, that this is the situation. Also, they were told that even though a veterinarian prescribes and/or supplies medication for feed, or a farmer himself brings in the drug product, the mixer must have an effective supplemental New Drug Application (NDA) or Antibiotic Form 10 if a new-drug substance shipped in interstate commerce is involved.

The discussion was in the form of a question-and-answer session. As it got under way, Mr. Kenyon referred to the recent statement by Dr. Julius Hauser of FDA. (Feedstuffs, Dec. 24.) This is the statement in which FDA appears to hold that anyone performing the final mixing of a new-drug-containing feed, even though a conventional concentrate rather than a drug premix is used, must have an NDA or Form 10 if the "final dosage form" for which safety has been shown and clearance given is a complete feed.

(The American Feed Manufacturers Assn. and the Grain & Feed Dealers National Assn. have a liaison group which has met with FDA on various questions, including the one on the use of new-drug-containing concentrates. Industry spokesmen have questioned some FDA interpretations, and their views are to be presented to the agency, with further industry-FDA conferences expected.)

Veterinarian's Prescription

Also receiving considerable attention were the roles of the veterinarian and the local feed mixer when it comes to the mixing of medicated feeds. The feedmen were told that a veterinarian's prescription in no way relieves him of responsibilities for NDA's and other requirements under FDA regulations. (Although it was not specifically mentioned at the Northwest meeting, a recent talk by Dr. LaVerne Harold of FDA dealt with this quite specifically and at some length. See Feedstuffs, Dec. 17.)

The discussion brought some indication of questioning as to just whether or how FDA could enforce its regulations if every mill and every new-drug-containing feed mix, where concentrates as well as premixes are used, must be covered by an NDA or Form 10.

For example, one feed man asked: "What about farmers who mix a concentrate or premix with grain? Will FDA check on them, too?"

The reply to this question was that it is not now known just how far FDA will check. However, it had been noted that, legally, controls reach out to the local mixer and farm mixer.

It was pointed out that safety of the animal and safety of the human food supply are the basic considerations in the law and regulations. However, there have been industry questions as to whether there really is a safety problem when normal procedures are followed particularly when properly prepared concentrates are used.

Another industry observation which persisted in the discussion was that FDA should do much more in the way of getting out information which would help feed men comply with regulations. The FDA man said that this problem "boils down to how much time and money" are available for such activities. However, the feed men expressed strongly the view that more information should be prepared and released if better understanding and compliance are to be expected.

Mr. Kenyon reviewed some of the basic provisions of FDA regulations, such as the new drug and food additive requirements, and he observed, among other things, that a feed product may be both a food and a drug under the law.

Specific Mill and Product

Asking how far down the line FDA jurisdiction extends, the feed men were told that if a new-drug substance moves in interstate commerce, control may extend all the way through final mixing. Mr. Kenyon mentioned, for example, that a supplemental NDA covers a specific mill and a specific product. Even though two or more mills were owned by the same firm and the same product were made in each, there might be variations in mill controls and separate applications would be required.

Points Discussed

A good many different points and comments were brought out in the discussion. Among them were these:

—One feed man said that frequently a vet will prescribe some medication to be mixed into feed. The farmer brings it to the mill in an unlabeled package. Neither the farmer nor the feed man knows what it is. The mixer must still meet FDA requirements, the feed men were told, and he would be "sticking his neck out" if he did not know whether there was a question of safety and whether an NDA was required.

—Feed men also raised questions as to whether it is legal for a veterinarian to prescribe a drug for feed without listing the active ingredient, whether he may prescribe something for which there is no effective NDA, etc. One feed man observed that it seemed that the miller was being put in the position of doing policing. The recent statements of Dr. Harold in regard to vet prescriptions were not specifically mentioned, but, as reported previously, FDA says that a vet may be held in violation of the law if he prescribes a drug or combination drug mix which is not generally recognized as safe or for which safety has not been shown and clearance given. In replying to some of these questions, Mr. Kenyon said that the mixer has a responsibility not to violate the federal law. A veterinarian's prescription is no "out," he commented.

—One feed man asked just what he should do if he were given an unlabeled drug, prescribed by a vet, and asked to mix it into the feed. Mr. Kenyon replied: "I would not mix it."

—Another feed man cited the case where a customer brings in an additive and asks that it be mixed into the feed. He asked whether he could be prosecuted for doing the mixing if he did not have specific clearance to prepare the mix. He was told that the mixer is responsible and that FDA could prosecute. Has there been such a prosecution? Mr. Kenyon said that, to his knowledge, there has been none.

—The question of whether a feed miller is in a role like that of a pharmacist came up a number of times. Actually, it was indicated, the job of the feed man is more complicated. A pharmacist frequently does nothing more than dispense a specified product without any further processing. A feed man, on the other hand, may have more responsibilities because he is involved in processing and in meeting mixing and other requirements.

—Is a veterinarian required to record any prescription he issues? A reply was that recording of prescriptions depends on state laws.

—Mr. Kenyon was asked whether FDA checks feeds to see whether dispersal of drugs is thorough. He replied that FDA constantly is analyzing medicated feed samples which are taken, as well as inspecting mills.

—Some persons asked whether there are specific tolerances for accuracy of mixing, for mixer clean-out and other things. They were not advised as to any specific tolerances but were told that anything they do is their responsibility, their "own risk." Also, they were reminded that each NDA spells out mixing and other mill requirements as well as drug level authorization, etc.

—One suggestion was that FDA might make available some specifications as to how well a batch mixer should clean-out and what, if any, tolerances there might be.

—One feed man suggested that drug or premix or concentrate suppliers specify on labels whether a particular drug is classed as a new drug. This, he said, would help the local mixer determine whether he was in or should take steps to be in compliance with new-drug regulations.

—Another question was whether the industry could expect uniformity among inspectors, whether mill and other requirements would vary among areas and among inspectors. Mr. Kenyon said that, as a rule, there should be no variation. He pointed out, for example, that if one inspector always turned in favorable reports while another reported many deficiencies in mills, supervisory personnel would immediately check on the situation.

—The feed men were told that the presence of pesticides in feed would constitute adulteration under the law, and that FDA frowns on any careless use of pesticides and other products which results in residues.

In general, it appeared, while many statements and comments on FDA compliance have been made, there still are a good many feed men who are not clear on just what their various obligations are or will be.

As the feed men filed out of the meeting room at the Hotel Pick-Nicollet in Minneapolis, one man quipped: "I have a sick child at home, and my wife asked me to stop at the drug store to pick up a prescription. Now I suppose I'll have to go by the FDA office, too, and get an NDA so I can mix the drug into the oatmeal we always use to get our kids to take medicine."

POULTS

(Continued from page 1)

numbered about twice as many as on the same date a year earlier.

Production of heavy white breeds in December totaled 1,914,000, up 55% from December, 1959. The hatch of other heavy breeds (mostly broad-breasted bronze) was 1,614,000, up 88%.

For all of 1960, the hatch of all heavy breed poults totaled 80,726,000 —10% more than in 1959. Heavy white production climbed 16%, and other heavy breed production was up 7%.

USDA reported that light breed poults totaled 746,000 in December, 1960, compared with 559,000 in December, 1959. The hatch for the year totaled 11,568,000, 27% less than the 15,756,000 counted in 1959.

All regions in which turkeys are produced hatched far more heavy breed poults in December of 1960 than they did in the same month the year before.

Although New England and the middle Atlantic states hatched no heavy breed poults in December, 1959, they produced 13,000 and 14,000 respectively, a year later.

Hatches were more than doubled in the south central states and nearly doubled in the east north central, west north central, south Atlantic and western states.

New England, east north central and west north central states expanded light breed poult hatchings in December, while reductions were reported in middle Atlantic, south Atlantic, south central and western states.

CHICKS

(Continued from page 1)

ber, the preliminary estimate of production for 1960 has been set at 483,862,000, down 11% from the 1959 total.

All regions reported increases from a year earlier in December's egg-type chick hatch. Greatest expansion was reported for the east north central, south Atlantic, west south central and Pacific states.

The total of all chicks hatched during December — both egg- and broiler-type—was 175,457,000, an increase of 13% from December, 1959.

Production of broiler-type chicks totaled 155,538,000, up 10% from December, 1959. The preliminary estimate of broiler-type chicks produced during 1960 totaled 1,959,897,000, compared with 1,884,120,000 in 1959 —an increase of 4%.

Eggs in incubators Jan. 1, 1961, indicate that the hatch of broiler chicks in January of this year will be about 5% larger than in January of 1960.

Egg-type chicken eggs in incubators were down from a year earlier in New England but up sharply in other regions. Increases ranged up to 73%.

Martin Schroll Joins Early & Daniel Co.

CINCINNATI, OHIO—Martin H. Schroll has been named credit manager of the Early & Daniel Co., manufacturer of Tuxedo feeds.

He will replace Lewis B. Daniel, who has accepted a position with the Fifth Third Union Trust Co. Mr. Daniel will continue to be on the board of directors at Early & Daniel.

Mr. Schroll comes to Cincinnati from Vicksburg, Miss., where he was credit manager for four years for the Valley Mills. Prior to that he was credit manager of Allied Mills in Lancaster, Pa.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
November 12	1,022	437	808	689	98	551	1,372	1,876
November 19	1,024	412	783	719	111	622	1,514	1,762
November 26	1,039	403	847	645	108	593	1,620	1,697
December 3	1,098	407	828	747	97	673	1,636	1,760
December 10	1,101	428	790	795	61	669	1,587	1,927
December 17	1,079	418	691	820	116	684	1,616	1,998
December 24	1,086	468	756	731	93	678	1,823	1,855
December 31	1,123	425	787	771	61	704	1,940	2,041
January 7	1,168	429	850	696	47	729	1,853	2,111
January 14	1,120	439	778	644	140	756	1,845	2,204

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
November 12	867	327	2,876	319	5,968	210	3,110	2,196
November 19	928	294	2,993	339	5,974	186	3,133	2,198
November 26	921	335	2,974	321	5,805	209	3,008	2,244
December 3	913	372	3,063	300	5,795	217	2,868	2,368
December 10	842	410	2,991	324	5,921	224	2,748	2,368
December 17	940	423	2,985	305	5,705	252	2,955	2,376
December 24	1,096	358	3,122	316	5,716	219	2,865	2,407
December 31	1,069	461	3,150	299	5,875	250	2,956	2,355
January 7	1,062	523	3,357	323	6,286	298	3,099	2,433
January 14	1,072	516	3,380	294	5,996	264	3,295	2,474

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1960-61	Total 22 areas 1959-60
November 12	3,375	371	1,739	280	199	1,117	29,807	26,884
November 19	3,328	385	1,760	290	203	1,114	30,072	27,133
November 26	3,327	362	1,730	200	176	1,108	29,672	27,416
December 3	3,423	280	1,947	301	218	1,236	30,547	28,868
December 10	3,556	422	1,946	256	212	1,263	30,794	29,054
December 17	3,814	395	2,120	246	270	1,265	31,473	29,029
December 24	3,966	416	1,901	228	221	1,329	31,650	25,952
December 31	4,129	474	2,054	260	253	1,229	32,666	31,212
January 7	4,055	442	2,288	325	224	1,226	33,824	32,359
January 14	4,006	433	2,145	307	279	1,284	33,671	32,401

Wyoming Grain, Feed, Seed Dealers to Meet

CASPER, WYO. — The Wyoming Grain, Feed & Seed Dealers Assn. members who attend the annual convention of the group here Feb. 5-7 will receive up-to-the-minute information on Food, Drug and Cosmetic Act application and a variety of other topics.

The convention at the Townsend Hotel here will get underway the evening of Feb. 5 with a cocktail hour and smorgasbord. A full round of convention business and talks will fill Feb. 6. The Feb. 7 session will last only through the morning, including the program and the annual business session.

A panel the morning of Feb. 6 will include talks on: "Feeds," by Dr. C. J. Kercher, division of animal science, University of Wyoming, and "Animal Diseases," by Dr. J. O. Tucker, head, division of veterinary science, University of Wyoming.

Talks on the afternoon program Feb. 6 include: "Application of the Food, Drug and Cosmetic Act to Grains and Feeds," a representative of the Food and Drug Administration, Denver; "Vitamins, Minerals and Antibiotics," Dr. C. J. Kercher, and "The Department of Agriculture and Our Service to Wyoming People," W. T. Kirk, commissioner of agriculture.

The program the morning of Feb. 7 includes a talk on "Our Major Industry Problems," W. T. Diamond, secretary of the American Feed Manufacturers Assn., Inc., Chicago.

EXPANSION PLANS TOLD

WATERTOWN, N.Y. — A program of remodeling and building expansion is on the planning boards for 1961 by D. K. Briggs, Inc., Great Bend, dealer in feed, fuel and building supplies since 1922. The company plans to double its capacity for the manufacturing of dairy and poultry rations as well as enlarging storage facilities to receive all feed ingredients in bulk.

CARGILL

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vate law practice at Grand Forks, N.D., and another year as instructor of law at the University of North Dakota. He was named secretary of the corporation in 1943, elected vice president in charge of Cargill's financial department in 1955 and a director in 1957. He serves on the firm's finance and audit committees.

Mr. Woodworth is a native of Minneapolis where in 1919 he began a lifetime career in the grain industry, in his family's firm. He joined Cargill in 1942, in 1949 was elected vice president in charge of the firm's government, trade and public relations, and a director in 1956.

Mr. Woodworth is past president of the Minneapolis Grain Exchange and past chairman of the National Grain Trade Council. He is first vice president of the Terminal Elevator Grain Merchants Assn., a director of the Grain and Feed Dealers National Assn., and a member of the U.S. Department of Agriculture's grain storage advisory committee.

PROCESSING FIGURES TOLD

MERIDIAN, MISS.—The Meridian Poultry Co., the city's newest industry which was officially put into operation the first week in January, is now processing 1,000 chickens an hour.

NORTHWEST

(Continued from page 6)

pellets of the wrong feed are delivered along with a load, since the screw conveyor unloader was not completely emptied out or some feed from the last delivery was left in the bulk truck. He urged use of caution and extra time to eliminate such occurrences.

The new Udy Protein Analyzer was discussed by Marshall Carpenter, Hegman, Inc., Minneapolis, in his talk entitled "New Things in Equipment." He said that the instrument has reduced the time for determining protein content from two hours to five minutes and the cost from $1.50-$2 to 5¢. Another advantage, he said, is that the country and terminal elevators can now make a protein test on the spot enabling them to bin grain according to protein level and more accurately appraise the value of the grower's grain.

He said that in a comparison with the accepted Kjeldahl method, the Udy analyzer gave a correlation of 0.970 with 1.0 being the perfect relationship.

A discussion on the subject, "Open vs. Explosion Proof Motors" was led by Arnold Volden, Volden Construction Co., Henning, Minn. The discussion came about because of a recent change in interpretation of Minnesota electric regulations requiring specially designed motors for installation in all mill locations. Mr. Volden said it is no longer possible to legally re-install open motors in a feed mill although the installation may involve only a move in the room or onto a new hammermill unit.

No action was taken on whether the association should request a change in the regulation.

TOP OF THE HOPPER

(Continued from page 2)

'em, hell," one of the men said. "We aren't selling any of our cattle any more. From here on out, we're all finishing them ourselves on this barley. Some of those Iowa farmers will really have to pay through the nose if they expect to get our cattle."

BIGGER TURKEY FLOCKS certainly are stylish these days. Doc Billings commented at the recent turkey convention that he hadn't met anyone there who doesn't raise at least 25,000 birds. One of the Feedstuffs scribes reports that every couple weeks he runs into someone who is talking about a million-bird-and-up operation he hasn't heard about before.

TONNAGE

(Continued from page 6)

Production of Various Agricultural Products in 1975 as Compared with 1956-58 Averages—This chart showed that substantial increases in production of eggs, fluid milk and cream, pork, chicken, lamb and mutton and beef will be needed by 1975.

The greatest increase is expected in beef—73% more than the consumption average of 1956-58. Increases indicated for other farm products from 1956-58 to 1975 are: Eggs, 41%; fluid milk and cream, 48%; pork, 53%; chicken, 58%, and lamb and mutton, 59%.

Percentage Change Since 1948 in Commercial Feed Consumption Per Grain Consuming Animal Unit—Mr. Ray referred to this data to show that commercial feed consumption per animal unit has been increasing steadily.

Average consumption per animal unit advanced 34% from 1948 to 1954. Declines in the percentage increase from 1948 were noted for several years immediately following 1954, but reached a record high of 49% in 1958.

Farmers Purchasing Increasing Quantities of Production Inputs—Farmers are tending to buy more of their production items off the farm. This means, of course, that purchased inputs are rising in volume while home-produced inputs are decreasing.

In 1958, farmers bought 40% more of their production items than they did in 1940. On the other hand, over the same 18-year period nonpurchased input items declined 28%.

Change in Prices of Various Farm Production Items, 1947-49 to 1959—This chart showed that feed is the only major farm production item that has declined in price during the past decade.

From 1947-49 to 1959, feed prices dropped 14%. But farm machinery prices rose 56%, wage rates climbed 42%, building and fencing supplies costs increased 33%, livestock prices gained 9% and fertilizer prices showed a 6% increase.

Mr. Ray listed three reasons which have greatly influenced the decline in formula feed prices: (1) Ingredient prices have gone down, (2) less labor is involved in feed production and (3) feed men have increased mill efficiency.

Concentrates Vs. Complete Feeds as Reported by 1958 Census—An important factor which has kept manufactured feed tonnage from climbing as rapidly as it might from year to year is the rapid increase evident in volume of concentrates.

Mr. Ray referred to data which showed that the tonnage increase in complete feeds for poultry, dairy cattle and hogs increased 8% from 1954 to 1958, while concentrates for these same animals increased 44% in tonnage over these same years.

"Despite this strong trend toward more concentrates, tonnage of complete feeds and concentrates combined increased 14% between 1954 and 1958," Mr. Ray observed.

For poultry, complete feeds gained 4% from 1954 to 1958 and concentrates gained 63%; for dairy animals the complete feed increase was 9% and concentrate increase was 19%. The position of complete feeds and concentrates was reversed for hogs, however. During the four-year period complete hog feeds gained 68% in tonnage, while the increase for concentrates was 36%.

Although concentrate volume is in an upward swing, complete feeds dominate industry production. Mr. Ray reported that 85% of poultry feed produced in 1958 was complete feed, 81% of dairy was complete, and 45% of hog feed was complete. For poultry, dairy and hog together the percentage of complete feed was 78% in 1958.

Annual Production of U.S. Feed Manufacturing Industry—From 1948 to 1959 the formula feed industry increased its annual output from 25½ million tons to 40 million, according to estimates based on AFMA research. Output in 1959 was essentially the same as in 1958 and, as Mr. Ray reported, "complete figures for the year are not in yet, but 1960 production probably was below the preceding two years."

Mr. Ray predicted that by 1970 annual formula feed production will reach a total of somewhere between 50 and 60 million tons.

Change from Preceding Year in Feed Manufactured as Reported to AFMA, 1950-59—For the U.S. as a whole, manufactured feed production has increased year to year since 1950 except for the years of 1953, 1955 and 1959.

The states of Minnesota, Wisconsin, North Dakota and South Dakota —designated Area 6 by AFMA—show a better record than does the U.S. For Area 6, only 1955 showed a decline in tonnage from the year before. And, in general, increases were greater from year to year than for the U.S.

Percentage Changes in Production of Various Agricultural Products—Expansion in broiler production is by far the most significant trend in animal numbers since 1950. The number of broilers raised in the U.S. increased 174% from 1950 to 1959. Other large increases during the decade have occurred in turkeys and beef cattle.

Mr. Ray listed the percentage changes in production of certain agricultural products for both the U.S. and the west north central region—Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska and Kansas.

Mr. Ray noted eggs are the only major commodity which showed a decline in production in the west north central region from 1950 to 1959.

Here are the percentage changes, as calculated from several USDA publications, for both the U.S. and the west north central region (U.S. figure first, regional second):

Eggs produced, 1950-59: 6% and —2%.

Broilers raised, 1950-59: 174% and 100%.

Pounds of turkey sold, 1950-59: 71% and 126%.

Pigs saved, 1949-59: 9% and 14%.

Milk produced, 1950-59: 7% and 2%.

Cattle on feed Jan. 1, 1950-60: 7% and 2%.

Beef cows and heifers on farms Jan. 1, 1950-60: Both 63%.

Sheep and lambs on feed Jan. 1, 1950-60: 14% and 10%.

Stock sheep and lambs on farms Jan. 1, 1950-60: 13% and 52%.

MARKETS

(Continued from page 2)

stabilized on some of the constituents but millfeeds and soybean oil meal both are down for the week.

Although temperatures over this area have moderated to a considerable degree, so far that condition does not seem to have had any appreciable impact on demand. Shipping instructions are plentiful and mills have been operating on a full 40-hour week again and in some cases putting in some weekend hours besides.

Steady demand maintaining for all lines of mixed feeds and some attention being called to the increase of 3% in domestic placements of pullet chicks for broiler hatchery supply flocks by leading primary breeders.

Pacific Northwest

Formula feeding was maintained this week throughout Oregon, Washington and Idaho. Representative processors said poultry mashes were moving especially good.

Feed ingredient prices edged a little higher on the average. Trading appeared to be moderately active for the period. General buying interest was good and readily absorbed offerings of most important items.

Mild weather conditions continued throughout the region and to some extent was responsible for conserving feed supplies. Supplemental feeding appeared to be general and even affected young animals and breeding stock.

Oil seed meal prices averaged higher with a moderate advance for soybean meal and a $3 increase for linseed meal listings.

Wheat millfeed prices were firm to 50¢ ton stronger at Portland and Seattle under the influence of tighter supplies and a continued good demand. Quotations for whole barley and milo closed on the stronger side.

Pacific Northwest alfalfa hay trading was on the slow side. Mild winter weather prevailed to the extent that it restricted some supplemental feeding and caused some large growers to offer remaining stocks.

South Central

Apparently feed sales volume in the area is holding up better than expected. Last week, several feed mill officials indicated that they felt the time was at hand for feed business to follow the usual mid-winter pattern and slow down. Sales did taper off for a day or two, but as they have snapped back so quickly, the time table for the downturn has been pushed ahead. Plants are continuing to operate on a strong five-day basis. Only a scattering of overtime runs were reported.

Cattle feed shipments are less than anticipated, attributed primarily to the mild and open weather. Hog feeds are showing the best movement and egg feeds are keeping up their steady pace. Pig and chick starter promotions are getting an early start. Several mills have either one or both featured in a sales campaign this week.

Ohio Valley

Area manufacturers of formula feeds are facing a strange and unexpected problem. Business is so good it has them wondering. Certainly, they readily admit, the over-all national production level is far below a booming stage and a new administration finds many important problems as yet unsolved. But the relatively small Ohio Valley feed industry currently is finding itself in a position that can only be described as booming!

With some area manufacturers sold out through January and into February, and with many ingredients being quoted at near all-time high prices, it is logically to be expected that area farmers would be abstaining from purchases of formula feeds, insofar as possible. But, surprisingly, they are not, and it seems apparent that the combination of prolonged cold weather, deep snow and lack of reserve retailers' stocks has created the present situation.

How long will this splurge of business continue? No one seems to have a ready answer, but there are a number of manufacturers who are hesitant to increase production too much, because they fear that, with warmer weather not too many weeks distant, "the bottom will drop out of the market," as several have expressed it. However, current demand for eggs and all types of meats continues excellent, and prospects appear good for a continuation of this situation through the spring months.

Mountain States

The feed market is somewhat slow due to several factors, dealers report. Advent of the National Western Stock Show always seems to slow volume down some. Other factors are the recently favorable weather, dry ranges and end-of-the-year inventory carry-over. These factors have worked to slow down the volume this month over last but the period seems about the same as last year. Prices are generally a little higher in many lines and about the same on others, with none going lower.

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Most Oilseed Meal Futures Show Drop

MEMPHIS, TENN. — Most prices of oilseed meal futures ended lower on the Memphis Board of Trade Jan. 18, compared with one week earlier.

The decline resulted from weakness in soybean futures at the close of the period. Soybeans yielded ground to a mounting volume of profit-taking on Jan. 18, and this loss was followed by the oilseed meals.

Another factor was a strong soybean oil market part of the period. Too, oilseed meals had enjoyed a good rise and leveled off Jan. 18.

Still another reason for lower futures prices was poor cash oilseed meal business, according to pit observers and dealers.

Unrestricted soybean oil meal closed Jan. 18 50¢ ton higher to $1.50 lower than on Jan. 11. Eastern Trunk Line soybean oil meal closed unchanged to 25¢ higher. Bulk solvent cottonseed oil meal was unchanged to $1 lower.

Dr. R. T. Parkhurst To Head USDA Lab

BELTSVILLE, MD.—Dr. Raymond T. Parkhurst has been named director of the new poultry research laboratory of the U.S. Department of Agriculture to be located at State College, Miss., according to announcement by Dr. Steven C. King, chief of the poultry research branch, animal husbandry division of USDA's Agriculture Research Service.

When the new Mississippi laboratory is opened, Dr. Parkhurst will staff it and direct a research program in management and environment as it relates to condemnations. Date of the lab's completion is still to be determined.

At present, Dr. Parkhurst is working on development of plans and facilities for both the Mississippi and Georgia laboratories which were authorized last year. Engineering and architectural contracts have already been let for the Georgia lab to be located in Athens.

Before joining USDA, Dr. Parkhurst served as director of research for Lindsey-Robinson & Co., Roanoke, Va., for 10 years and prior to that was with the Flory Milling Co., Bangor, Pa.

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